

# Academic Performance Model Based on Academic Emotions and Academic Motivation with the Mediation of Emotional Intelligence in First Grade Secondary School Students in Tabriz City

Noushin. Derakhshan<sup>1</sup>, Roghayeh. Poursabri<sup>2</sup>, Nahideh. Yousefpoor<sup>1\*</sup>

<sup>1</sup> Department of Educational Sciences and Psychology, Payame Noor University, Tehran, Iran

<sup>2</sup> Department of Educational Sciences, Payame Noor University, Tehran, Iran

\* Corresponding author email address: nahidyousefpoor97@pnu.ac.ir

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## ABSTRACT

**Objective:** One of the important groups in every country is students who play a significant role in shaping the future and the excellence of nations. Therefore, the purpose of the present study was to develop a model of academic performance based on academic emotions and academic motivation with the mediation of emotional intelligence in first-grade secondary school students in Tabriz city during the academic year 2024-2023.

**Methods and Materials:** This study is descriptive-correlational in terms of objective and quantitative in terms of approach. Structural equation modeling was used to evaluate the relationships between the current variables and the measured variables in the proposed conceptual model. The population of the present study included all first-grade secondary school students in Tabriz city during the academic year 2024-2023. To select the sample size, initially, 250 students from first-grade secondary school students in Tabriz city were selected using cluster random sampling method based on the Morgan formula, and then they responded to the Fam and Taylor (1990) academic performance progress questionnaire, Pakravan (2005) academic emotions questionnaire, Frederick, Blumenfield, Paris (2004) academic motivation questionnaire, and the adolescent version of Petrides and Furnham's emotional intelligence questionnaire (2006). The data were analyzed using Pearson correlation test and structural equation modeling through SPSS-26 and AMOS version 24 software.

**Findings:** The results showed a positive indirect effect of academic emotions on academic performance through emotional intelligence ( $\beta = 0.223$ ,  $p < .001$ ). The negative indirect effect of academic emotions on academic performance through emotional intelligence was also significant ( $\beta = -0.189$ ,  $p < .001$ ). The indirect effect of academic motivation on academic performance through emotional intelligence was positive and significant ( $\beta = 0.319$ ,  $p < .001$ ).

**Conclusion:** Therefore, the results of the present study can be of interest to the education organization, teachers, and students.

**Keywords:** Academic Performance, Academic Emotions, Academic Motivation, Emotional Intelligence, Students

## 1. Introduction

School can be considered as a social environment created for the purpose of conducting educational and developmental affairs of society. Through schools, the continuity of social life, the transmission of heritage and cultural values of a society, as well as its expansion and advancement, take place. Jan Dweyer believes that the school environment is not solely for preparing for social life, but rather, the school constitutes a social life itself and should be integrated with the realities of society and social roles so that the boundary between school and society dissolves (Xu et al., 2023), thus focusing on students' academic performance. Academic performance is defined through students' inclinations (reflecting attitudes, cohesion, and level of interest) towards academic subjects when students' knowledge and skills are measured against a performance standard (Kohsar et al., 2007; Mahasneh, 2014). Therefore, academic performance is an essential aspect of learning and plays a crucial role in assisting students in academic activities. It sets a situation that directs and maintains forces, essentially comprising goals and activities aimed at motivating movement and action. It is also a set of beliefs, perceptions, values, information, and actions that are closely related (Abedini & Barat Dastjerdi, 2016; Dogan, 2015). Academic performance is clearly influenced by numerous related variables. Previous studies have identified various factors that affect students' academic performance in different settings. These factors include class attendance, age, learning styles and expectations, gender, class size, entry conditions, and family income (Abedini & Barat Dastjerdi, 2016).

The term academic performance refers to a manifestation of students' academic status, which may represent a grade for a period or an average grade in a period related to a subject or various period grades (Karna & Stefaniuk, 2024; Kooren et al., 2024). Various criteria can be considered for academic performance, with the most famous being class averages (Omale, 2024; Piskorz-Ryń & Chikwe, 2024). Students' academic performance is influenced by various factors. One of the important research objectives of educational psychologists is to investigate these factors. Psychologists believe that students not only acquire cognitive knowledge and skills during education but also experience pleasant and unpleasant emotions related to learning and progress. Emotions and feelings are among students' personality factors present throughout the learning process (Russell & Qiu, 2024; Swanson, 2024; Yang & Seyed Alitabar, 2024;

Zhou, 2024). Many emotions related to learning and academic progress are considered as school environment emotions. Students live in two important emotional environments called home and school, and their performance and behavior are influenced by these two emotional or affective environments (Mahvash et al., 2024; McDonnell et al., 2024). In this regard, Pekrun (2006) states that emotions directly related to activities or academic outcomes are defined as academic emotions (Pekrun, 2005). This term was first introduced by Pekrun in the field of education. They can be positive (such as joy, pride, or anger) or negative (such as fatigue, anger, anxiety) and can be active (pleasure, pride, or anger) or inactive (shame) experienced in all learning situations before, during, and after class attendance or study exams. In this context, some researchers refer to emotions as important factors that explain academic motivation and success. Research results indicate that emotions have a significant impact on academic learning and achievement, making it easier or hindering it (Pekrun, 2006; Pekrun et al., 2006; Pekrun et al., 2005).

One of the variables that seems to be related to academic emotions is the concept of academic enthusiasm. Academic enthusiasm can predict short-term and long-term academic success goals, and according to studies, students who lack enthusiasm for learning and school are more likely to drop out than others, which is observable in schools and universities (Dogan, 2015). The amount of energy and time that students devote to learning and school-related activities is derived from enthusiasm and academic engagement (Haseli Songhori & Salamti, 2024; Rahmani et al., 2021), and a student with high academic enthusiasm is less prone to negative thoughts and maladaptive behaviors in school and possesses abilities conducive to academic progress (Bageri et al., 2022; Emami Khotbesara et al., 2024). Academic enthusiasm encompasses a broad scope involving individual interaction with the environment, and this concept can be divided into three cognitive dimensions: the individual's desire to understand issues and solve challenges, the emotional dimension including the individual's positive and negative feelings about the educational environment, and the behavioral dimension, such as the individual's participation in academic and sports activities (Fredricks et al., 2004). Academic enthusiasm refers to self-initiated and purposeful participation in academic activities, indicating a kind of sustainable psychological investment and facilitating learning accompanied by positive emotional states among individual efforts. Efforts aimed at enhancing understanding or mastery of knowledge and skills, or professions taught,

are educational goals (Haseli Songhori & Salamti, 2024; Yang & Seyed Alitabar, 2024). The opposite of enthusiasm is lack of enthusiasm or indifference, which indicates a lack of effort and perseverance, manifested passively, lack of initiative, reduced efforts, and abandonment of tasks, and the appearance of negative emotions such as debilitating emotions, alienating emotions, and feeling pressured in activities (Faroughi et al., 2020; Fredricks et al., 2004).

Given that emotional intelligence is an intra-individual variable possessed by each individual, finding ways and methods to increase individuals' emotional intelligence can lead to improvement. Emotional intelligence is a type of emotional processing that includes accurate assessment of one's and others' emotions, appropriate expression of emotions, and proper regulation of them; in a way that improves the flow of life (Alah et al., 2018; Arias et al., 2022). In other words, emotional intelligence can be defined as the deployment of emotional abilities of oneself and others in individual and group behaviors to achieve maximum results (Arias et al., 2022). Emotional intelligence is actually a non-cognitive intelligence rooted in the concept of social intelligence. According to Thorndike, emotional intelligence is an important ability for human beings to act in a rational manner in human relations (Petrides et al., 2004). By considering variables such as the role of communication patterns, especially dialogic communication patterns, and emotional intelligence, one can enhance the academic performance and academic motivation of students. Given the above, the aim of the current study is to answer the question of whether the conceptual model of academic performance based on academic emotions and academic enthusiasm with the mediating role of emotional intelligence fits the empirical model in students.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This research, in terms of its practical purpose, falls under the category of descriptive and correlational research, and in terms of its approach, it is quantitative. Structural equation modeling was used to evaluate the relationships between the constituent variables and the measured dimensions in the proposed conceptual model. The population of the present study consisted of all first-grade high school students in Tabriz city during the academic year 2023-2024. To select the sample size, initially, a cluster random sampling method was used, and 250 first-grade high school students in Tabriz

city were selected based on the Morgan formula, after which the research questionnaires were distributed among them.

### 2.2. Measures

#### 2.2.1. Academic Performance

To measure the academic performance of students in this study, the EPT questionnaire was utilized. This questionnaire is adapted from the studies of Fam and Taylor (1990) in the field of academic performance, tailored for the Iranian population (Fam & Taylor, 1990, as cited in Darta, 2004). The academic performance test is capable of measuring five domains related to academic performance with 48 questions, as follows: 1- Self-efficacy: Confidence in one's ability to cope with academic requirements and educational activities. 2- Emotional effects: Individual reactions to a set of emotions such as anxiety and worry that cause agitation. 3- Planning: Ability to organize study activities based on a specific and executable plan and proper use of time for educational assignments. 4- Lack of outcome control: Belief that increasing one's performance does not lead to a change in the desired academic outcome. 5- Motivation: Strengthening behavior for further study to increase academic motivation for higher grades, obtaining suitable jobs, or simply studying to gain knowledge and improve skills and general knowledge. Noor Mohammadian (2006) obtained the validity of each factor of the questionnaire as follows: Factor 1: 0.91, Factor 2: 0.92, Factor 3: 0.73, Factor 4: 0.63, Factor 5: 0.72. In this study, the researcher used content validity to validate the test. Content validity was assessed by distributing the test to 5 education experts and 10 educational specialists from the Education Organization, and their opinions were collected. There was sufficient agreement in most questions. Noor Mohammadian (2006) estimated the reliability of this test as 0.74 (Abedini & Barat Dastjerdi, 2016). In the present study, the Cronbach's alpha coefficient was calculated as 0.86.

#### 2.2.2. Emotional Intelligence

The Petrides and Furnham Emotional Intelligence Questionnaire 2006 is a self-report scale. The original and first version consists of 144 items and 15 subscales. The short form of this questionnaire consists of 30 items. Each question is scored on a seven-point Likert scale from completely agree to completely disagree. Foroughi (2014) obtained a Cronbach's alpha coefficient of 0.845 for this questionnaire in their study, indicating its good reliability

(Abedini & Barat Dastjerdi, 2016; Haseli Songhori & Salamti, 2024). In the present study, the Cronbach's alpha coefficient was calculated as 0.90.

### 2.2.3. Academic Emotions

This questionnaire is a self-report and paper-pencil type divided into three sections. These sections include the part related to classroom emotions, emotions related to learning, and emotions related to exams. The part related to exam emotions, titled "Exam Emotion Questionnaire," was published, constituting a complete and separate section of the questionnaire. Each section contains 8 subscales; the classroom-related subscales, with 80 questions, measure 8 emotions: enjoyment in class, hope, pride, anger, anxiety, shame, hopelessness, and fatigue. The part related to exam emotions, with 77 questions, includes emotions related to enjoyment of the exam, hope, pride, anger, anxiety, calmness, shame, and hopelessness. The learning-related emotions part consists of 75 questions measuring emotions related to learning, hope, pride, anger, anxiety, shame, hopelessness, and fatigue. It should be noted that Pekrun, considering theoretical foundations, designed questions in a way that each section measures emotional experiences in three different situations. For example, exam emotions consist of three sets of questions measuring emotions experienced before, during, and after the exam. Additionally, in each subscale, the emotional dimension, including affective, cognitive, motivational, and physiological aspects, is considered. These features are indicated in the results section with letters A, C, M, and P, representing the first letters of the four emotional dimensions. Pekrun, Goetz, Titz, and Perry (2002) showed that the Cronbach's alpha calculated for the subscales of the questionnaire ranges from 0.75 to 0.95, indicating acceptable reliability of this tool. In this study, due to some limitations, the subscales related to exam emotions were omitted. However, according to Pekrun, Goetz, Titz, and Perry (2005), this part is a separate section and does not introduce any bias to the study. The original questionnaire text was first translated into Persian by an English language specialist

and two doctoral students in psychology, then two psychologists and English language specialists agreed on the final translation after reviewing three translation forms. Finally, a bilingual English language specialist and four professors of psychology and education and five doctoral students in educational psychology confirmed the formal and content validity of the questionnaire. Additionally, before the main implementation of the plan, the questionnaire was provided to various student groups for completion, and in some cases, ambiguous and complex sentences that were not easily understood by students were modified (Emami Khotbesara et al., 2024; Haseli Songhori & Salamti, 2024). In the present study, the Cronbach's alpha coefficient was calculated as 0.92.

### 2.2.4. Academic Enthusiasm

The Academic Interest Scale was developed by Fredricks, Blumenfeld, and Paris and consists of 15 items measuring three subscales of behavioral, emotional, and cognitive interests among students. To determine the reliability of this scale, the Academic Interest Scale was distributed and completed by 200 students from various medical science disciplines (these students were not part of the sample). After calculating the reliability coefficient using the Cronbach's alpha method, a Cronbach's alpha coefficient of 0.66 was obtained. Fredricks and colleagues reported a reliability coefficient of 0.86 for this scale (Emami Khotbesara et al., 2024; Haseli Songhori & Salamti, 2024). In the present study, the Cronbach's alpha coefficient was calculated as 0.88.

### 2.3. Data analysis

The data were analyzed using Pearson correlation test and structural equation modeling through SPSS-26 and AMOS version 24 software.

## 3. Findings and Results

Table 1 shows the mean and standard deviation of the research variables.

**Table 1**

*Mean and Standard Deviation of Research Variables*

Variable	Mean	Standard Deviation
Positive Academic Emotion	96.66	12.13
Negative Academic Emotion	34.145	54.31
Academic Enthusiasm	81.35	32.15

Emotional Intelligence	74.115	79.23
Academic Performance	90.153	51.31

Table 2 shows the correlation matrix of the research variables.

**Table 2**

*Correlation Matrix of Research Variables*

Variable	1	2	3	4	5
Positive Emotion	1.000				
Negative Emotion	.546	1.000			
Academic Enthusiasm	.448	.164	1.000		
Emotional Intelligence	.382	.332	.116	1.000	
Academic Performance	.718	.062	.281	.371	1.000

The results of Table 2 indicate that there is a significant positive correlation between academic performance with academic enthusiasm and emotional intelligence. Additionally, the results show that there is a significant

positive correlation between academic performance and positive academic emotion, but no significant correlation was observed between academic performance and negative academic emotion.

**Table 3**

*Fit Indices for the Structural Model of Academic Performance Based on Academic Emotion and Academic Enthusiasm with Emotional Intelligence Mediation*

Index Type	Index Name	Abbreviation	Value	Acceptable Range
Absolute Fit Indices	Goodness of Fit Index	GFI	.993	> .90
	Adjusted Goodness of Fit Index	AGFI	.874	> .80
Comparative Fit Indices	Normed Fit Index	NFI	.983	> .90
	Comparative Fit Index	CFI	.993	> .90
	Relative Fit Index	RFI	.973	> .90
	Incremental Fit Index	IFI	.984	> .90
Parsimony Fit Indices	Parsimony Normed Fit Index	PNFI	.718	> .50
	Root Mean Square Error of Approximation	RMSEA	.042	< .90
	Chi-Square to Degrees of Freedom Ratio	CMIN/DF	28.1	< 5

The results in Table 3 indicate that the proposed model fits adequately.

**Table 4**

*Direct, Indirect, and Total Effects of Research Variables*

Predictors	Direct Effects	Indirect Effects	Significance Level
Positive Emotion	269.0	-	.001
Negative Emotion	317.0	-	.001
Academic Enthusiasm	412.0	-	.001
Positive Emotion on Emotional Intelligence	-	223.0	.001
Negative Emotion on Emotional Intelligence	-	189.0	.001
Academic Enthusiasm on Emotional Intelligence	-	319.0	.001
Emotional Intelligence on Academic Performance	189.0	-	.023
Positive Academic Emotion Mediating Emotional Intelligence on Academic Performance	-	223.0	.001
Negative Academic Emotion Mediating Emotional Intelligence on Academic Performance	-	189.0	.001
Academic Enthusiasm Mediating Emotional Intelligence on Academic Performance	-	319.0	.001

As the results in Table 4 demonstrate, the indirect effect of positive academic emotion on academic performance through emotional intelligence (223.0) is positive and significant. The indirect effect of negative academic emotion on academic performance through emotional intelligence (189.0) is positive and significant. Similarly, the indirect effect of academic enthusiasm on academic performance through emotional intelligence (319.0) is positive and significant.

#### 4. Discussion and Conclusion

The purpose of the current study was to model academic performance based on academic emotions and academic motivation with the mediating role of emotional intelligence in students. The results indicated that the indirect effect of positive academic emotions on academic performance through emotional intelligence was significant and positive ( $\beta = 223, p < .001$ ). Similarly, the indirect effect of negative academic emotions on academic performance through emotional intelligence was also significant and positive ( $\beta = 189, p < .001$ ). Moreover, the indirect effect of academic motivation on academic performance through emotional intelligence was found to be significant and positive ( $\beta = 319, p < .001$ ), consistent with the prior findings (Abedini & Barat Dastjerdi, 2016; Alah et al., 2018; Arias et al., 2022; Emami Khotbesara et al., 2024; Haseli Songhori & Salamti, 2024; Kohsar et al., 2007; McDonnell et al., 2024; Petrides et al., 2004).

In interpreting these results, it can be argued that academic performance holds particular importance in the contemporary world. Advanced and progressing societies place great emphasis on performance, competition, and success. Indeed, the academic performance of students is one of the most important and tangible measures for examining and evaluating the effectiveness and efficiency of educational systems, and all efforts of this system are perceived as aimed at achieving this goal (McDonnell et al., 2024). In fact, one of the most important issues for educational stakeholders, especially officials of the higher education system, is the academic performance of students (Arias et al., 2022).

Successful individuals in education attain positions and statuses that utilize their maximum internal and external resources towards educational and training goals, achieving necessary conditions for successful social living. Conversely, academic failure entails personal and social problems and deviation from achieving the goals of the

education system (Rivkin et al., 2005; as cited in Mahasneh, 2014). Factors related to students' academic performance have long been of interest to many researchers, experts, and practitioners in higher education. Therefore, education specialists have identified various factors that have a significant impact on students' academic performance. These factors can be divided into four categories: individual, school-related, family, and social (Emami Khotbesara et al., 2024; Kohsar et al., 2007). Among these factors, individual dimensions have been the main subject of studies in psychological and educational research and have been investigated. However, it should be noted that these individual factors are so intertwined and interact with each other that determining the role and contribution of each of them is difficult. Studies conducted in the field of cognitive psychology indicate that metacognitive knowledge has a significant impact on improving students' academic performance and should be paid more attention to (Petrides et al., 2004).

Therefore, in recent decades, educational psychologists have introduced the concept of emotional intelligence and highlighted its impact on cognitive processes and consequently on students' academic performance (Abedini & Barat Dastjerdi, 2016). Some studies, such as Kohsar et al. (2007) and Lalifaz & Asgari (2008), have shown that emotional intelligence has no effect on academic success. However, other studies, (Abedini & Barat Dastjerdi, 2016; Alah et al., 2018; Arias et al., 2022; Emami Khotbesara et al., 2024; Haseli Songhori & Salamti, 2024; Kohsar et al., 2007; McDonnell et al., 2024; Petrides et al., 2004) have shown that emotional intelligence has a significant relationship with cognitive skills and academic success of ordinary and non-traditional students. Additionally, two factors of academic emotions and academic motivation can be considered as important factors in shaping the necessary foundations for students' academic performance. Various researchers consider academic motivation to have different dimensions such as behavioral (positive behavior, effort, and participation), cognitive (self-regulation, learning goals, and learning investment), and emotional (including interest, belonging, and positive attitude towards learning). Several studies have shown that if learners become more involved in learning and learning tasks, they can achieve educational and learning goals and ultimately focus on academic achievement (Abedini & Barat Dastjerdi, 2016; Alah et al., 2018). The motivation of students for an academic activity initially indicates that the task has attracted the attention of the student and then provides the necessary energy to sustain

the excitement and motivation until the end of the task (Kohsar et al., 2007; Petrides et al., 2004). However, it should be noted that students are not engaged in learning; rather, they are involved in tasks, activities, and experiences that lead to learning. Therefore, the main task of the educational system is to encourage students to invest their internal resources (such as energy, time, and attention) in a task. For students to invest their internal resources in a task, they must pay attention to and commit to the task in question. Therefore, attention and commitment are two important and mutually influential dimensions of academic motivation. When students are not committed to a task, internal motivation will complete the task in the best possible way (Alah et al., 2018; Arias et al., 2022). Therefore, for students to have more academic motivation for learning and teaching and, of course, better academic performance, they must have internal motivation for the individual.

## 5. Limitations & Suggestions

As every research has limitations, the limitations of the present study include the fact that this research was conducted on first-year high school students in Tabriz city. Therefore, in generalizing the findings of this research to other students, attention should be paid to other age groups, other cities using interview tools, it is also recommended to counselors and psychologists to determine the effect of academic performance variables in mathematics, academic emotions, academic motivation, and emotional intelligence in students, psychotherapy interventions, counseling, and education for adolescents.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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## Authors' Contributions

All authors equally contributed to this article.

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