

**Determining the relationship between life expectancy and self-regulation with academic performance mediated by students' academic vitality**

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**Abstract**

**Introduction:** The educational system can be considered successful and efficient when the academic performance of its learners reaches the highest and highest figure, the aim of this study was to determine the relationship between life expectancy and self-regulation with academic performance mediated by the academic vitality of female high school students.

**Methods:** This study was a correlational study and also used structural equations to mediate the role of academic vitality. The statistical population of the study included all female high school students in Tehran in the academic year 2019-2020. The research sample was 330 students in the community and multi-stage cluster sampling method was used to select the sample from among the students and in the next step, random method was used. The data collection tool was a questionnaire that in this study, in addition to the researcher-made demographic information form, consisted of Pham and Taylor, Academic Performance Questionnaire, Martin and Warsh and Schneider Life Examination Questionnaire) and self-regulatory questionnaire. Beaufort was used. In order to investigate the effect of mediating role between the variables studied in this study, the bootstrap method was used in the structural model and the relationship between life expectancy and academic performance as mediating role in academic life was investigated.

**Results:** The results showed that the relationship between self-regulation and academic performance and the mediating role of academic life have a complete effect and a significant direct effect, but the indirect effect is not significant. Also, the relationship between self-regulation and academic performance with the mediating role of academic life showed that the full effect and direct effect and indirect effect are not significant.

**Conclusion:** According to the results, it can be said that there is no mediating effect among the measured variables. In fact, academic vitality is not able to mediate the relationship between the self-regulatory variable and academic performance.

**Keywords:** Life Expectancy" Self-Regulation" Academic Vitality" Academic

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## **Performance**

### **Introduction:**

In today's complex world, every country and nation with every point of view and belief and with every political and social system pays special attention to the issues of higher education. This shows on the one hand the importance of education and on the other hand the necessity of human life to this issue. Today, what is referred to as the glorious human civilization and culture is an achievement and knowledge that is based on the educational system (1). Academic performance is one of the most important concerns of the educational system and shows the success of the educational system in setting goals and paying attention to meeting individual needs; therefore, the educational system can be considered successful and efficient when the academic performance of its learners reaches the highest and highest figure (2).

The most important sign of the success of the educational system in achieving the goals is the academic performance of its learners. The learner is approved and accepted by peers, teachers and parents with proper academic performance, and his self-esteem and sense of adequacy and worthiness increase. And humiliates and refuses to continue education and learning (3). Since in order to evaluate the effectiveness of each activity and program, the final product and its product are examined, in the education system, this is done by examining the academic performance of students (1).

Academic performance depends on various factors that can affect a person's performance in the educational environment in certain circumstances (4). Identifying the factors affecting students' academic achievement and performance provides an appropriate approach to planning, developing and evolving educational programs in order to achieve the best possible results for both the desired educational development and for students (5). Researchers have found that academic achievement is not only a consequence of personal intelligence or hardware possibilities in social settings, but also those psychological aspects of individuals, such as personality traits and learning styles, play an important role. One of the important achievements of research and studies on learning is the topic of self-regulated learning; In this type of learning, learners have personal control over their learning process and in addition to more speed and accuracy in learning, issues such as higher self-reliance, self-efficacy and more responsibility are also seen in them. The term self-regulation has been around since 1980, and Zimmerman in 1986 defined it as the amount of active effort that individuals Meta cognitively, motivationally, and behaviorally exhibit in learning activities. Self-regulation is the ability of an individual to develop knowledge, skills, and behaviors that can be transferred from one learning context to another, as well as from learning situations to work and leisure; This new structure has sparked debate over school reform around the world (6).

On the other hand, paying attention to health is one of the vital needs of human beings for growth and development, and today it seems that hope and hope have a special place in mental and physical health and, consequently, one's progress. Researchers believe that hope is essential for coping with problems and conditions of confidence, and since hope is essential for the health and well-being of every individual, then hope is also a basic need for students. Not only are students hopefully able to effectively identify thoughtful ways

along the way, but they are also able to create multiple ways to achieve their goals and are often willing to try new approaches (7). According to Schneider (8), hope is a positive motivational state that is based on a sense of stability and direction and arises from the individual's interaction with the environment and mental set, which is based on a mutual sense of will and planning to achieve goals. The term life expectancy refers to the average life expectancy, which is equivalent to the number of years of life that a person reaches from one generation to the end of life at a given time. In other words, life expectancy is the average number of years a person will live after each age. On the other hand, educational vitality is a structure that arises from positive psychology (9) and refers to the fact that it can enable students to successfully face academic obstacles and challenges such as poor grades, exam pressure, Face the difficult tasks that occur during school and school. It also reflects the educational vitality, vitality and daily psychological tolerance in the school (8). In everyday academic life, students face all kinds of challenges, obstacles and pressures specific to this course. Some students succeed in overcoming these obstacles and challenges, but another group of students fail. Therefore, understanding and how to adapt to academic challenges should be given serious attention by education. Potter, Perry, Hall, Stockert (10) defines academic vitality as the ability of students to successfully meet the academic challenges that are common in the course of academic life. Also, academic vitality to a positive, constructive and adaptive response to all kinds of challenges and obstacles that are experienced in the field of continuous and current education; Refers to (11). Vitality is considered as one of the components of mental well-being in many educational systems. When a person does something spontaneously, not only does he not feel tired and hopeless, but he also feels that his energy and strength have increased. In general, the inner sense of vitality is a significant indicator of mental health (11). The results of studies such as Abolghasemi (12) show the relationship between life satisfaction (and consequently hope) and vitality in students with high academic achievement and vitality in students with high academic achievement as the strongest predictor of life satisfaction. Therefore, the aim of this study was to determine the relationship between life expectancy and self-regulation with academic performance mediated by academic vitality.

### **Research Method:**

The present study was conducted by correlation method, which examines the type and direction of the relationship between variables and also using structural equations to mediate the role of academic vitality. The statistical population included all female students in Tehran in the academic year 2019-2020. The sample size was 330 students and multi-stage cluster sampling method was used to select the sample and in the next step, random method was used.

Inclusion criteria include; 1) Female students, female students in Tehran, academic year 2019-2020 and age 15 to 18 years and exclusion criteria; There were people who left more than 5 questions unanswered in the questionnaire and also moved during the school year.

**Pham and Taylor Academic Performance Questionnaire:** The Pupil and Taylor Student Performance Assessment Questionnaire is an adaptation of Pham and Taylor research that

he prepared in 1999 (13) and has been validated in the field of academic performance for the Iranian society. The academic performance test is capable of 48 questions Measure 5 areas related to academic performance and its purpose is to evaluate academic performance from different areas (self-efficacy, emotional effects, planning, lack of outcome control, motivation). In the study of (14), the validity of the content of this questionnaire was confirmed by the professors. Also, the construct validity of this scale was confirmed by factor analysis method. The reliability of the questionnaire was evaluated by Cronbach's alpha method, the results of which are as follows (self-efficacy with Cronbach's alpha 0.92; emotional effects with Cronbach's alpha 0.73; planning with Cronbach's alpha 0.93; lack of outcome control with With Cronbach's alpha 0.64; motivation with Cronbach's alpha 0.73 and Cronbach's alpha of the whole questionnaire was; 0.74).

**Beaufort Self-Regulatory Questionnaire:** It is a 14-item questionnaire designed to assess self-regulation based on Bandura's social cognitive theory. The questions of this questionnaire are on the Likert scale and measure the two factors of cognitive strategies and metacognitive strategies of self-regulation. In the Beaufort Self-Regulatory Questionnaire, there are 5 options for each question, which include: strongly agree, agree, have no opinion, disagree and strongly disagree. The method of scoring using the Likert scale is from the option I completely agree, I agree, I have no opinion, I disagree, and I strongly disagree, which is given a score from 5 to 1, respectively. Questions 5-13-14 are scored in reverse. The total score of each person can be 14 to 60. The overall reliability coefficient of Beaufort self-regulatory questionnaire based on Cronbach's alpha was 0.71 (15). Also, the reliability of the above test in a study conducted by Arabzadeh (16) and Cronbach's alpha is reported to be 0.67. Factor results showed that the correlation coefficient between the questions was appropriate and the fit of the factors was acceptable and its validity was desirable. The construct validity of this questionnaire has been reported to the desired level by using correlation coefficients and analyzing the factors of correlation coefficients between the questions of the questionnaire. And Cronbach's alpha coefficient for measuring internal consistency was 0.80. Based on this, it can be said that this questionnaire is able to predict the scores and actual subjects (17).

**Academic Vitality Questionnaire:** To assess academic vitality, the 9-item Academic Vitality Scale of Hossein Chari and Dehghani Zadeh (18) were used. This scale is based on the Latin version of the Martin & Warsch Academic Vitality Scale (10), which has 4 items. Responses on the Vitality Scale are scored on a 7-point Likert scale (strongly disagree = 1 to strongly agree = 7), with scores ranging from zero to 28. Akbari Borang and Rahimi, Borang (19) were stable in terms of internal consistency using Cronbach's alpha method of 0.80 and retest 0.67. Two studies have been performed to prepare and evaluate the psychometric properties of the questionnaire in Iran.

**The life expectancy questionnaire of Schneider et al.:** The hopefulness questionnaire prepared by Schneider, Harris, Anderson, Holran, Ironic et al. (20) has 12 questions and its purpose is to assess the life expectancy of individuals. Its scoring method is based on a 5-point Likert scale. This questionnaire is designed for people 15 years and older. The scoring method is based on a 5-point Likert scale; with scores for each option ranging from strongly disagree to strongly agree 1 to 5, respectively. But this scoring method is the

opposite of questions 3, 7 and 11. To get the total score of the questionnaire, calculate the total score of each question. Higher scores will indicate more life expectancy in the respondent and vice versa. The validity and reliability of this questionnaire has been reviewed and approved by the professors of management and experimental study of Mashhad University and teacher training (21). Bryant and Wengros (21) obtained the internal consistency of the whole test from 0.791 to 0.711.

The questionnaires distributed among the students were analyzed by descriptive statistics and inferential statistics after scoring using Amos software. Also in the inferential section, the correlation coefficient and structural equations were considered.

### Results:

Bootstrap method was used to investigate the mediating role between the variables studied in this study in the structural model. In other words, when there is a mediator variable in research, this method can be used to examine the relationships between mediators. In this study, the mediating role of academic vitality in the relationship between life expectancy and self-regulation with students' academic performance has been investigated. To analyze this hypothesis, the proposed model of the above variables was examined. The results of statistical scales of fit indicators (GOF) showed that:

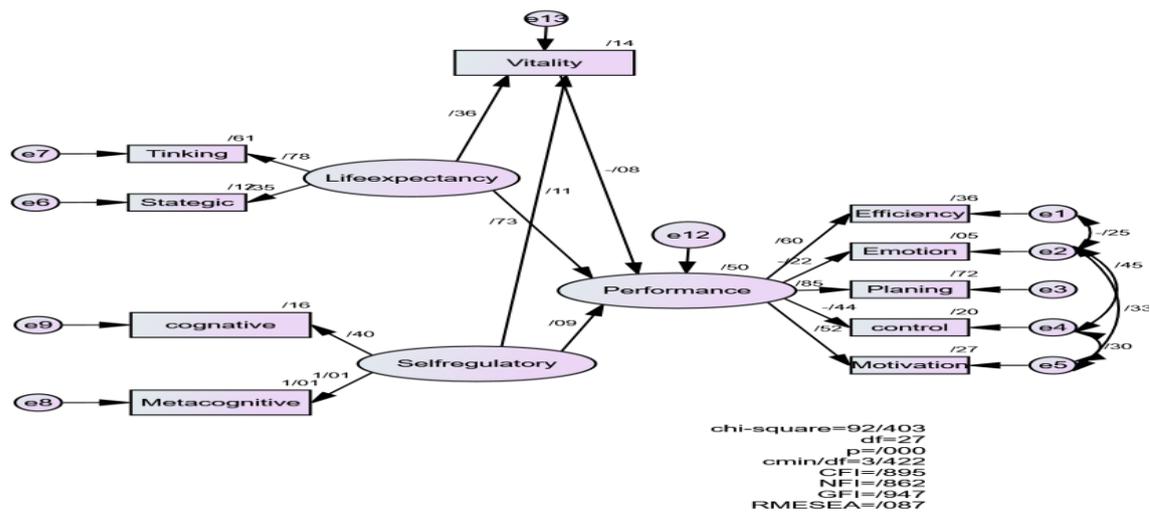
Chi-square ( $\chi^2 = 239.896$ ,  $df = 47$ ) which was significant at the level of 0.000. The value of  $cmin / df$  is also equal to 104.5. Comparative correction index 0.733 (CFI) = normalized fitness index 0.738 (NFI) = are also not acceptable, because they are less than 0.90. Also, the goodness-of-fit index (GFI) = 0.881 and the root of the mean square error (RMSEA) = 0.068 are not acceptable, and all indices indicate that the model does not fit. The results of the fit indices can be seen in Table 1.

Table 1: Structural equation model fit indices

Chi-square	DF	P	cmin/df
<b>239.796</b>	47	0.000	5.104
GFI	NFI	CFI	RMSEA
<b>0.881</b>	0.738	0.773	0.114

Since the initial structural model of the studied variables did not have a good fit and its goodness indicators were not in an acceptable range, so the assumed model needed some corrections, which was done by adding covariance between some errors. Accepted fit. Factor loading in the modified model was obtained from 0.16 to 0.83.

Findings obtained in the modified model showed that chi-square ( $\chi^2 = 138.093$ ,  $df = 44$ ) is significant at the level of 0.000. Also, the value of  $cmin / df$  is equal to 3.138. Comparative correction index 0.908 (CFI) = normalized fitness index 0.894 (NFI) = which is close to an acceptable value. Also, the goodness-of-fit index (GFI = 0.933) is larger than acceptable. Also, the approximate error of 0.074 (RMSEA) = indicates the good fit of these indicators and they are acceptable. According to the obtained indicators, the modified structural model has a good fit.



Model 1: Fit indicators

The results of the fit indices of the above model are shown in Table 2. In the proposed structural model, standard path coefficients are shown.

Table 2: Fit indicators of the modified structural equation model

Chi-square	DF	P	cmin/df
92.403	47	0.000	3.422
GFI	NFI	CFI	RMSEA
0.947	0.862	0.947	0.087

Bootstrap method was used to investigate the mediating role between the variables studied in this study in the structural model. Bootstrap is a method used to examine the effect of indirect methods. The bootstrap method is a non-parametric method that estimates standard errors through resampling (Bolen and Stein, 1990). The advantage of this method, unlike Baron and Kenny methods and Sable test, is that the results of all direct and indirect paths are extracted simultaneously and have a higher accuracy. The results of the model are judged.

1. Complete effect: This model is the complete effect or direct effect of independent variables (x) on the dependent variable (y) without the presence of a mediating variable.
2. Indirect effect: An indirect effect of the variable x on y through an intermediate variable M. The relationship between X and Y is indirect when X is the cause of M and M in turn has an effect on Y.
3. Direct effect: A direct effect of the variable X on y when the variable M also exists.

In this study, as shown in Table 3, the relationship between life expectancy and academic performance also mediated the mediating role of academic life. The results showed that the relationship between the variables with full effect (Total effect = -0.703,  $p < 0.05$ ) and direct effect (direct effect = .731,  $p < 0.05$ ) were significant but indirect effect (Indirect effect = -.028,  $p < 0.05$ ) is not significant.

Also, the relationship between self-regulation and academic performance with the mediating role of academic life showed full effect (Total effect = .078,  $p > 0.05$ ) and direct effect (direct effect = 0.086,  $p > 0.05$ ) and indirect effect (Indirect effect = - .009,  $p > 0.05$ ) are not significant. According to the results, this means that there is no mediating effect here either. In other words, academic vitality cannot play a mediating relationship between the self-regulatory variable and academic performance.

Table 3: Complete effect, direct and indirect effect between meth

independent variable	Full effect $p^3$	Direct effect $p^2$	Indirect effect $p^1$
Life expectancy> Academic life> Academic performance	703 (0.001)	731 (0.001)	-0.028 (0.455)
Self-regulation> Academic life> Academic performance	0.078 (0.546)	0.086 (0.473)	-0.009 (0.260)

### Conclusion:

In the present study, the relationship between life expectancy and academic performance with the mediating role of academic life was investigated. The results showed that the relationship between the variables has a complete effect and a significant direct effect, but the indirect effect is not significant. Also, the relationship between self-regulation and academic performance with the mediating role of academic life showed that the full effect and the direct effect and the indirect effect are not significant. According to the results, this means that there is no mediating effect here either. In other words, academic vitality cannot play a mediating relationship between the self-regulatory variable and academic performance. In explaining this issue, it can be said that educational vitality is the dynamic process of adaptation and positive adaptation to bitter and unpleasant experiences in life (22).

Vitality in the educational environment is considered as a very high probability of success in school and other life situations in spite of environmental hardships and difficulties. In the educational environment, students with vitality succeed at a high level despite obstacles, social, cultural and economic problems (22). By examining high school students, Martin and Marsh (10) showed that the level of vitality plays an important role in reducing or increasing students' academic motivation.

In a study of high school students, Martin (11) showed that the factors of self-efficacy, control, planning, low anxiety and perseverance and effort are important predictors of students' educational vitality. Ang and Huan (23) showed that educational vitality explains a significant variance of psychological and emotional well-being. Higher levels of educational vitality predict positive and negative emotions. Experiencing positive emotions helps people with vitality cope better with everyday stress. Togad and Frederick Sun (24) showed that educational vitality is directly related to positive emotions and inversely

related to negative emotions. Cohen, Fredrickson, Brown, Michaels, and Conway (21) surveyed students to show that positive emotions predict increased educational vitality and life satisfaction. As it was stated, academic vitality affects academic performance due to the adjustment it creates in the individual. In this study, the results showed that academic vitality does not play a mediating role in the structural model of academic performance based on life expectancy and self-regulation. The relationship was attributed to insufficient education and lack of suitable conditions for the sample in the study. The flourishing of the student's academic vitality has not been reported.

### **Research Limitations:**

1. The present study was limited to female students in Tehran and did not include the male population.
2. Lack of cooperation of schools in the distribution and implementation of questionnaires has been one of the other limitations of the research.
3. Lack of cooperation of students in filling out questionnaires and distorting some questionnaires has been one of the limitations of the research.

### **Contribution of authors**

This article is taken from the PhD dissertation in General Psychology. Dr. Parisa has been the supervisor of this dissertation and has been the main designer of the subject. Dr. Majid Ebrahimpour has played the role of consultants in this study. Ms. Tayebeh Ghafouri, as the researcher of this dissertation, has been involved in compiling the contents and compiling the final text.

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### **Conflict of interest**

The authors of this article certify that this work has not been published in any domestic or foreign journal and is the result of the research activities of all authors and they are aware of and satisfied with its publication. This investigation has been carried out in accordance with all ethical laws and regulations and no violations have been committed. The author is responsible for reporting potential conflicts of interest and sponsors of the research, and he / she is responsible for all of the above.

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