Explaining the Causal Model of Perceived Competence on Psychological Capital with the Mediating Role of Academic Emotions of Tenth Grade Male Students in the Second Year of High School in Tehran

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Abstract

Purpose: The aim of this study was to investigate the causal pattern of perceived competence on psychological capital mediated by the academic emotions of 10th grade male high school students in Tehran.

Methodology: The research method was applied in terms of purpose, quantitative approach, cross-sectional in terms of data collection time and correlational in terms of research method. The statistical population of this study consisted of all tenth grade male students of the second year of high school in Tehran in the academic year 2019-20, from which 510 people were selected by multi-stage cluster random sampling. In this study, the tools of perceived competence (De Perna and Elliott, 2000), psychological capital (Lutans, 2011) and academic excitement (Pekrun, et al., 2005) were used, all of which had acceptable validity and reliability. SPSS-V23 and Amos-V8.8 software were used to analyze the data. Structural equation modeling was also used to answer the research hypotheses.

Findings: The research findings showed that the model has a good fit. The results showed that perceived competence has an effect on psychological capital in students. Academic excitement affects the psychological capital of students. Perceived competence also affects psychological capital through the mediation of academic emotions.

Conclusion: Therefore, it can be said that increasing psychological capital and perceived competence can improve the academic excitement in students.

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1. Introduction

Throughout life, man goes through ups and downs that are full of challenges and opportunities. A significant part of life challenges is related to adolescence, which brings with it educational challenges. The academic year is a period of life in which rapid cognitive and social changes occur (Datu & Valdez, 2019). One of the important goals and tasks of education is to create a basis for the all-round growth of the individual and to train healthy, efficient and responsible human beings to play a role in individual and social life. Since students, as the basic element of the country's educational system, have a special role and position in achieving the goals of the educational system, attention to this segment of society in terms of education, training, fertility and the flourishing of the educational system of the society Causes. However, of the total number of students entering the education system, few can develop their talents and overcome life's challenges and challenging academic conditions (Goldsmith, Darity & Veum, 2018).

The emergence of positive psychology has led to significant developments and penetrating and effective research in various fields of behavioral sciences, including studies on various issues of students (Bae, 2019). "Psychological capital" derives from the "positive psychology" introduced in the postmodern school (Çavuş & Gökçen, 2015). Psychological capital includes strengths and positive aspects of human behavior (Kim, Oja, Kim & Chin, 2020). Lutans saw positivity as more about focusing on and strengthening people's abilities than managing their weaknesses (You, 2016). Psychological capital focuses on activities that lead to the well-being of individuals, the construction of positive individuals, the flourishing of societies, and social justice. The image that positive psychologists paint of human nature is optimistic and hopeful; because they believe in the ability to expand, nurture, flourish and perfect human beings and become what is human ability (Bitmiş & Ergeneli, 2015).

Thus, psychological capital is a combined and interconnected structure that includes four perceptual-cognitive components, namely optimism, resilience, hope, and self-efficacy. Optimism is an interpretive style that attributes positive events to permanent, personal, and pervasive causes, and negative events to external, temporary, and specific causes (Newman, Nielsen, Smyth & Hirst, 2018). Resilience is a class of phenomena that is characterized by a pattern of positive adaptation to significant problems and risks (Yazdanbakhsh, Moradi & Bastami, 2018). Hope is a positive motivational state based on a pragmatic driver, a sense of dynamic success, and a sense of success of strategies (Virgă, Baciu, Lazăr & Lupşa, 2020). Finally, self-efficacy is a person's strong belief in his or her ability to mobilize motivational and cognitive resources and the strategies needed to achieve certain successes (Atsa & Kuset Bodur, 2020). In fact, these components, in an interactive and evaluative process, give meaning to a person's life, continue the person's effort to change stressful situations, prepare him to enter the scene of action, and guarantee his resilience and stubbornness in achieving goals, and cause Increases academic performance and competence in individuals (Wu & Chen, 2018).

Academic performance includes structures that have long been considered by education professionals and have been the subject of much research (Coleman, 2019). Education professionals have always tried to create the conditions for learners to show the greatest academic efficiency. Therefore, identifying the variables affecting the academic performance of learners is very important, one of the structures that is related to academic performance and achievement and has been considered by experts in recent decades, is perceived competency. Perceived competence includes skills, attitudes, and behaviors that lead to teachers' judgment of performance as well as student achievement in the classroom. When teachers assess students' academic skills, in fact, they look for all components of perceived competence such as interpersonal skills, study skills, motivation, and student academic preoccupation (Deci, Olafsen & Ryan, 2017).

Competence is a combination of overt and covert knowledge, behavior, and skills that give people the ability and capacity to perform their duties effectively. Academic competence can also be defined as a teacher's assessment of a student's behavior and emotional preoccupation (Yu, 2019). Diperna & Elliott (1998) in a specific sense defined academic competence as a construct composed of academic enablers and

academic skills. Academic skills include basic cognitive, educational, and academic factors, as well as factors such as reading, math, and critical thinking. While academic competencies include social and emotional factors that have a total of five factors of academic skills, interpersonal skills, academic motivation, academic engagement and study skills (Weeks, Ploubidis, Cairney & et al, 2016). Some research has shown that lower academic competence and greater anxiety in students lead to decreased motivation, preoccupation, and academic achievement. Academic competence is also associated with pursuit of goals, emotional adjustment and mental health, graduation, academic achievement and academic achievement (Maltais, Duchesne, Ratelle & Feng, 2015). According to research, academic competence, which is the level of abilities and skills for learning, can be related to emotional, cognitive and family-social factors (Nurkan, 2020).

Another dimension influencing perceived competence is emotions (Roh, Kim & Issenberg, 2019). Today, educational psychologists believe that students not only acquire knowledge and cognitive skills during formal education, but also associated pleasant and unpleasant emotions. They grow with progress: In recent years, the number of researchers studying the educational context with an emotional perspective has increased (Estevan & Barnett, 2018). Academic excitement refers to emotions that are directly related to progressive activities, Enjoyment of learning, fatigue during training, and anger at homework requirements) or the consequences of academic achievement (pride, anxiety, or shame) (Pekrun, 2006). According to Pekrun (2010), the effect of emotions on academic skills and empowerment by a number of Cognitive, social, and motivational mechanisms are created that include motivation for learning, family and social environments, and cognitive sources of self-directed learning, individual beliefs about oneself. Pekrun (2006) in his theoretical model explains the antecedents and consequences of academic emotions. His opinion is progressive Academic excitement should be considered at different socio-cultural, family, personal and cognitive levels. Personal precedents refer to assessments related to the control, beliefs, and values of the individual in educational situations. Socio-cultural backgrounds of emotions reflect the effects of social and family environments. On the other hand, the impact of family environments such as socioeconomic status of the family is mediated by assessments related to individual control and personal values. Also, the consequences of academic excitement are: better use of cognitive resources, interest, motivation and academic engagement, and the use of learning strategies, all of which are factors in academic competence (Simonton & Garn, 2020).

Cocorada (2016) in a study entitled Academic emotions related to students' learning and academic performance concluded that the emotions of pleasure, hope and pride have a positive and significant relationship with academic performance. Also, Ismail (2015) study entitled Classroom emotions of Saudi students and its relationship with academic achievement in English showed that academic emotions explain about 66% of the variance of students' academic success. Pekrun, Goetz, Frenzel (2011) found that the emotions of pleasure, hope and pride have a significant relationship with students' intermediate exam scores. The study by Kohoulat, Hayat, Dehghani, Kojuri & Amini (2017) found that excitement of pleasure and pride are positive predictors of high school students' grades. According to Pekrun's (2006) social cognitive model of academic emotions, social environments such as family and educational systems stimulate emotions, which in turn increase learning ability, motivation, academic engagement, and interpersonal skills. Successes and failures, in turn, can affect students' emotions (Qalkhanbaz F, Khodaei, 2014). On the other hand, personality cognitive patterns are based on the assumption that human emotions are influenced by his perception of events and, accordingly, individual emotion. The consequence of his perception of reality is not the environment itself (Lin, Yin, Han, Han, 2020).

Therefore, the results of the present study are also important in terms of education. As you know, one of the goals of education is to train students with healthy and constructive relationships and to attract the attention of these students to participate in social activities and have healthy social relationships, so that they can be useful citizens for themselves and society. Therefore, the realization of these goals is somewhat

impossible until the necessary conditions are provided in terms of education. Unless a healthy psychosocial atmosphere is created in the school and classroom and students do not experience such an atmosphere during their school years, they cannot be expected to be at a high level of learning. Therefore, families and their members, school educators, classroom teachers, community trustees, and educational institutions related to education must work tirelessly to educate adaptive students so that we have a healthy and adaptable society. A society where individuals can grow and prosper and achieve the prosperity and evolution that is the main goal of creation, Therefore, conducting this research can be effective as a new topic for understanding the issue of academic motivation and related prerequisite factors, and provide guidelines for identifying and increasing perceived competence, psychological capital, and excitement of progress in students. Compensate for the decline in research in this area, especially in the country, and also, another necessity of this research is to attract educational circles to facilitate the learning conditions and environment of learners. According to the above-mentioned issues, the researcher in this study seeks to address this issue: What effect does perceived competence have on psychological capital mediated by the academic emotions of high school students in Tehran?

2. Methodology

The design of the present study was a correlation design through structural equation modeling. The statistical population of the present study included all tenth grade male students in the second year of high school in Tehran in the academic year 2019-20. Multi-stage cluster random sampling method was used to select the sample. For this purpose, first 5 districts were selected from 22 districts of Tehran and 4 schools from each district and 3 tenth grade classes from each school of the second period were selected and finally the questionnaires were distributed to the students in each school. In this study, the sample size for each question was 5 subjects and in general, according to the number of questionnaire items, 470 people were considered. To prevent the possibility of dropping the sample, 550 questionnaires were distributed among students and finally 510 questionnaires in full were returned. Questionnaires were administered to students for 60 days. It is necessary to provide the necessary explanations about the knowledge of the objectives of the study, voluntary participation, privacy, confidentiality, non-registration of identification details, the right to cancel in all stages of data collection in the study and their consent to participate in the study and The approval of the ethics committee and the degree code of the ethics committee were also obtained.

DiPerna & Elliott (2000) Perceived Competency Questionnaire (ACES): This test was developed by DiPerna and Elliott in 2000 to assess students' perceived competency. The test has 67 questions that are scored on a 5-point Likert scale from never (1) to almost always (5) and has two scales: academic skills and academic empowerment. The Academic Skills Scale included three subscales of reading and writing skills, scientific / mathematical and critical thinking skills, and the Academic Empowerment Scale included four subscales of Motivation, Study Skills, Interpersonal Skills, and Interaction. In De Perna (2006) research, the reliability of this instrument was obtained by Cronbach's alpha method for subscales between 0.94 to 0.99 and by retest method between 0.88 to 0.97. Also, the content validity of the instrument was evaluated by experts. The correlation between the ratings of the evaluators for the subscales was between 0.31 and 0.65. The validity and reliability of the questionnaire were evaluated in this study. Cronbach's alpha value for reading / writing skills subtests, math / science skills, critical thinking, interpersonal skills and interaction, motivation and study skills subtests 0.73, 0.67, 0.71, 0.63, 61, respectively / 0, 0.64 and 0.72 were obtained. In the first-order factor analysis, the results showed that the seven-factor model fits with the data. In the second-order factor analysis, the value of chi-square statistics was appropriate. Also, other fit indices were desirable and all questions had a significant factor load with their subtest they were.

Lutans (2011) Psychological Capital Questionnaire (PCQ): To measure the psychological capital of the 24-item questionnaire by Lutans (2011; quoted by Golparvar, Jafari and Javadian, 2013). with four subscales of self-efficacy, hope, resilience and the optimism presented was used. The response scale used in this study for this questionnaire was six points (strongly disagree = 1 to strongly agree = 6). Lutans (2011; quoting Golparvar, et al., 2013) reviewed the validity and reliability of this questionnaire along with short forms of psychological capital and provided evidence of the validity and reliability of this questionnaire. For example, Lutans (2011) as evidence of concurrent validity of this questionnaire with other versions of the psychological capital questionnaire, between psychological capital and self-efficacy positive and significant correlation between 0.48 to 0.54, with the hope of a positive and significant correlation between 40 It reported a positive and significant correlation between 0.48 and 0.55 with resilience and a positive and significant correlation between 0.47 and 0.50 with optimism. The face validity of this questionnaire was also reviewed and confirmed (Golparvar, et al., 2013). In the study of Golparvar, et al (2013), exploratory factor analysis with varimax rotation on 24 questions of this questionnaire obtained the same four factors introduced in the main questionnaire and Cronbach's alpha for self-efficacy, hope, resilience and optimism, respectively, equal to 0.91, 0.89, 0.83 and 0.70 were obtained.

Pekran, et al (2005) Academic Emotion Questionnaire (AEQ) this questionnaire was developed by Pekran, Goetz and Perry (2005) in 43 questions. The questionnaire consisted of three sections: progress-related emotions, learning-related emotions, and exam-related emotions, and each part consisted of eight subscales that measured the emotions of pleasure, hope, pride, anger, anxiety, shame, fatigue, and despair. Females were scored on a five-point Likert scale. Pekran, Goetz, Titz and Perry (2002) reported Cronbach's coefficients calculated for the subscales of the questionnaire from 0.75 to 0.95 and examined and confirmed its validity by exploratory factor analysis. Kadivar, et al (2009) obtained Cronbach's alpha coefficients of these subscales from 0.75 to 0.86 and examined its validity by confirmatory factor analysis. In this study, according to the purpose of the study, positive and negative emotions of learning were measured. Cronbach's alpha coefficients were 0.92 and 0.87 for positive emotions and 0.89, 0.89 and 0.93 for negative emotions, respectively, and the results of factor analysis confirmed the validity of this questionnaire. The analysis of the information obtained from the questionnaires was performed using Spss-V23 and Amos software. Structural equation modeling was also used to test the research hypotheses.

3. Findings

Descriptive findings of research variables are given in Table (1).

Table1. Descriptive findings of research subscales

Scale	Average	The standard deviation	Skewness	kurtosis
Academic skills	112.30	17.81	-0.91	1.24
Academic ability	144.00	23.17	-0.97	1.90
Pleasure	16.71	4.07	-0.11	-0.51
Pride	17.21	3.72	0.03	0.02
Anxiety	13.77	3.88	0.05	-0.56
Shame	20.58	7.09	0.53	1.05
Anger	11.25	3.08	-0.14	0.28
Disappointment	9.70	3.77	0.35	-0.74
Fatigue	32.56	8.11	-0.07	-0.14
Efficacy	28.22	4.66	-0.78	1.11
Hope	27.83	5.00	-0.80	0.75
Resilience	25.69	4.56	-0.20	-0.23
Optimism	24.73	4.76	-0.59	0.14

The results of Table 1 show that among the dimensions of academic excitement, the highest mean is related to fatigue and the lowest mean is related to frustration. The results of model implementation in standardized and non-standardized mode along with some of the most important indicators of initial model fit are presented in Figure (1).
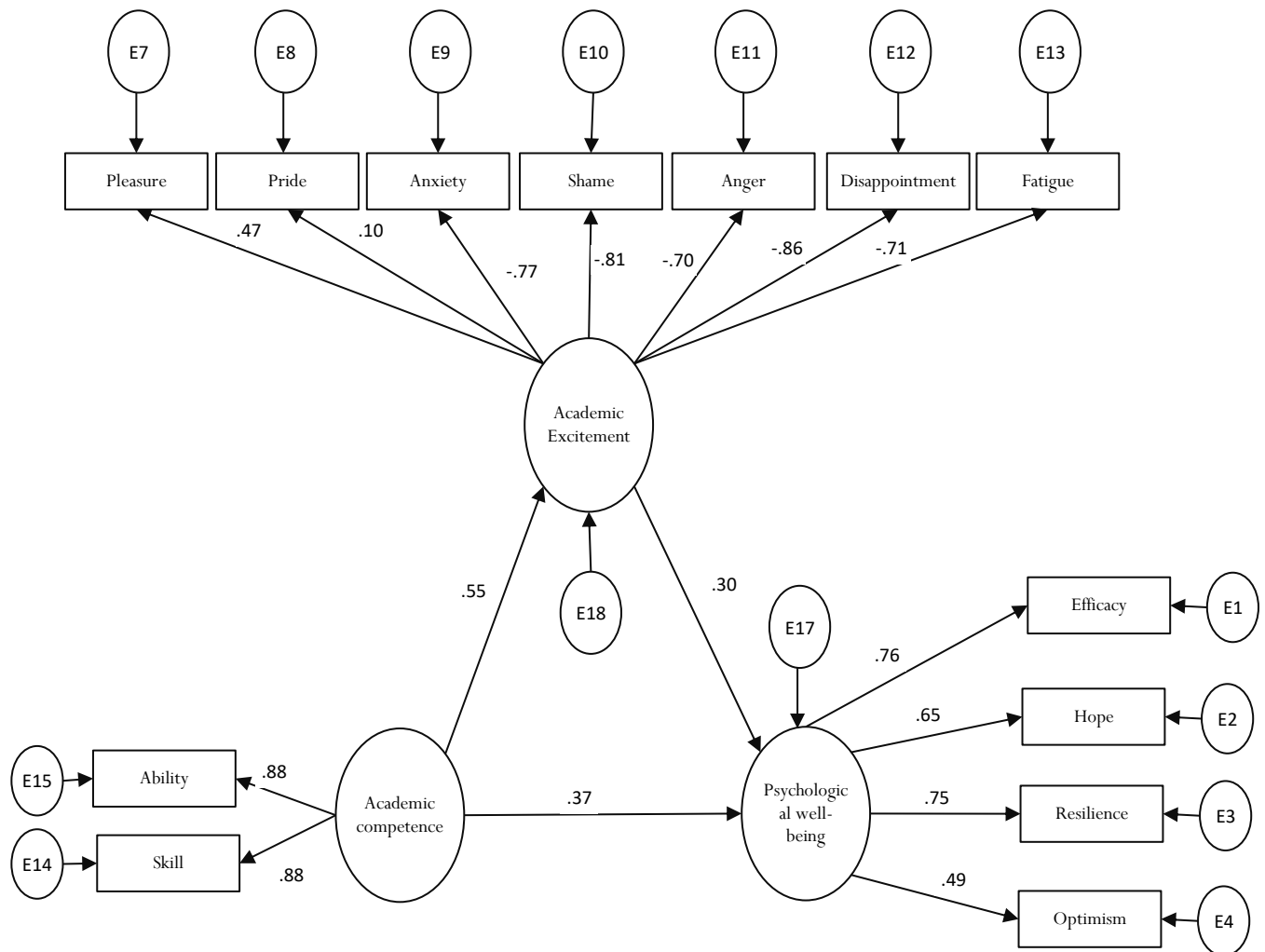
Figure1. Model in standardized coefficient mode

The table below lists the most important and common fitting indicators.

Table2. Model fit indicators

Index name	Fitting characteristics	
	the amount of	Limit
$\dfrac{\chi 2}{df}$	1.23	Less than 3
(Root of average estimation error) RMSEA	0.04	Less than 0.1
CFI (Modified Fit)	0.98	Above 0.9
NFI (Softened Fit)	0.95	Above 0.9
GFI (Fit Goodness)	0.97	Above 0.9
AGFI (Fitted Goodness)	0.95	Above 0.9

In general, in working with the Emus program, each of the obtained indicators alone is not the reason for the suitability or inadequacy of the model, and these indicators should be interpreted together. The values obtained for these indicators show that in general, the model is in a good position to explain and fit.

Table3. Coefficients and significance of the direct effect of perceived competence and academic excitement on psychological capital

Criterion variable	Predictive variable	Type of effect	Non-standardized coefficient	β standardized	Significant statistics	sig
Psychological capital	Perceived competence	Direct	0.10	0.59	9.17	0.001
	Academic Excitement	Direct	0.54	0.30	4.35	0.001

What results from Table 3 is that perceived competence has a direct effect on psychological capital, the relationship between perceived competence and psychological capital is directly equal (t = 9.17 and β = 0.59). Therefore, the hypothesis in relation to the direct effect of perceived competence on students' psychological capital has been confirmed with 95% confidence (p <0.05).

Also, the factors of academic emotions have a direct effect on psychological capital, the relationship between academic emotions and psychological capital is directly equal (t = 4.35 and β = 0.30). Therefore, the hypothesis in relation to the direct effect of academic emotions on students' psychological capital has been confirmed with 95% confidence (p <0.05).

Table4. Coefficients and significance of the indirect effect of perceived competence on psychological capital

Criterion variable	Predictive variable	Type of effect	Non-standardized coefficient	β standardized	Significant statistics	sig
Psychological capital	Perceived competence	Indirect (academic excitement)	.03	.17	3.02	0 .002

The results of Table 4 show that the hypothesis in relation to the indirect effect of perceived competence on students' psychological capital due to academic emotions has been confirmed with 95% confidence (p <0.05).

4. Discussion

The aim of this study was to explain the causal pattern of perceived competence on psychological capital mediated by the educational emotions of 10th grade male high school students in Tehran. The results showed that the hypothesis related to the indirect effect of perceived competence on students' psychological capital due to academic excitement was confirmed with 95% confidence. The results of these studies are consistent with the results obtained in the studies of you (2016), Newman et al (2018), Virgă, et al (2020), and Deci, et al (2017). Coleman (2019) reported in a cross-sectional study of 359 third- to seventh-grade students that students with lower academic eligibility perceived peer academic support that influenced their academic achievement. That is, despite the decline in academic competence, the support of friends and peers is a factor influencing students' academic success. Deci, et al (2017) in a study examined the relationship between academic competence, academic self-concept and academic outcomes such as grade point average. In this study, 200 high school students were studied. The results showed a significant relationship between low academic competence and academic outcomes with the role of self-concept mediation and a significant negative relationship between low academic competence and psychological interaction with the role of academic self-concept mediation. In Weeks et al (2016) study entitled Emotional-social conditions and academic competence, the role of self-efficacy mediation was performed on 369 students. The results showed that socio-emotional conditions are not assessed through the mediation of academic competence and self-efficacy, but socio-emotional conditions have a significant relationship with self-efficacy.

In explaining the results, it can be said that the need for competence is the need for the ability to perform challenging tasks in various fields such as physical activity, education and so on. One of the basic needs of people is to feel competent in their environment, that is, to feel competent among other things. Early academic experiences shape students' perceptions of competence, which in turn may affect academic

achievement. In longitudinal studies, positive self-perception has been associated with higher levels of academic achievement. People with high self-efficacy, because of their ability to solve problems in the past and have successful experiences, solve problems when faced with the belief that they can overcome them. Therefore, its competence and perception in students determines their academic success and academic grades, and this increases the psychological capital of students. Pekrun (2006) in explaining the relationship between the dimensions of academic competence and students' academic emotions, divided the emotions that occur in the educational environment into three general categories of emotions related to self and homework, emotions related to review and social emotions. . The experience of positive and negative emotions related to oneself, related to revision and related to social context definitely affects students' perception of the class, mental and physical states as well as their learning process. In the implicit sense that academic emotions mediate the relationship between self-assessment and the educational environment and academic preoccupation; the environment supports the psychological needs of the psychological feeder; the food one needs to satisfy psychological needs. Satisfying psychological needs leads to many positive consequences, including the experience of positive emotions (Yazdanbakhsh, et al, 2018); Also, Pekrun (2010) based on the results of their research, emphasized the role of emotions on what happens in the classroom and the success of students' learning and progress. Also, positive beliefs about oneself and belief in a meaningful world on the one hand, and on the other hand, the socio-economic conditions and environment of the family increase positive academic emotions. These emotions also increase the pleasure of learning and fatigue, failure and anger caused by learning. Reduce. On the other hand, positive emotions increase the feeling of competence with the effect it has on the success and academic achievement of learners; On the other hand, due to the important role that emotions play in organizing communication patterns, they provide a suitable platform for strengthening learners' socio-emotional competencies and increase academic competence.

Among the limitations of the research, we can mention the tool for measuring variables, which uses only self-report questionnaires and there is a possibility of bias in the answers. The data and analyzes of the present study are cross-sectional studies and therefore the causal conclusion about the data is not correct. And longitudinal research should be done on this. Therefore, it is suggested to pay attention to the emotions that students experience in the learning environment, such as anxiety, pleasure, anger, etc.; Because when a student is anxious, he does not learn with good quality and also cannot show his abilities optimally. So the learning environment should be such that the negative emotions of students such as anger, shame, anxiety are minimized and controlled (for example, the student should not be humiliated and ridiculed for poor performance, to all Students should be given enough attention and students should not be poor in the classroom. Expectations from the student and the volume of assignments given to the student should be reasonable and practical assignments should be provided to the student) and positive emotions in students from Such as fun, create hope (for example, the learning environment should not be just a student-teacher and there should be a friendly atmosphere and there should be free discussions, short breaks between lessons, in the classroom, students are all taken into consideration). And ask for everyone's opinion on the issues that arise and give them positive feedback for the correct answers and their progress; also, in relation to the decisions and educational goals, consult with the students and ask for their opinion. In this way, students increase their intrinsic motivation and experience positive emotions based on research findings, and They find the classroom environment fun and enjoyable, and enjoy learning new things more, thus increasing their psychological capital.

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