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Predicting Academic Quality based on School Culture: Mediating role of Self-system Processes in High School Students

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ABSTRACT

Objective: The primary objective of the ongoing study was to make predictions regarding the academic quality by analyzing the influence of school culture, considering the mediating role of the self-system's processes of high school students.

Methods: The research methodology employed in this study was applied and descriptive-correlational in term of data collection. The statistical population under scrutiny encompassed all high school students from Baharestan city in 2022, totaling 300 eligible individuals selected through the implementation of the stratified sampling technique, including male and female students from the 10th, 11th, and 12th grades. For the data gathering, the research utilized questionnaires on school culture developed by Higgins and Sade (1998), Self-System Processes Questionnaire (Gagné, 2003), and The Quality of Life Scale (QOLS). The statistical tool of Pearson's correlation coefficient was applied to examine the interrelation between the variables. Subsequently, the data was analyzed to verify the heuristics and establish the path coefficients derived from the structural equations modeling.

Results: The findings indicated that there exists a direct positive correlation between school culture and its self-system processes ($p < 0.01$, $\beta = 0.528$). Moreover, it was observed that school culture exerts an impact on academic quality both directly ($\beta = 0.339$, $p < 0.01$) and indirectly ($\beta = 0.286$, $p < 0.01$) through its mediation of the self-system's processes. Additionally, the self-system's processes were found to have a direct positive influence on the academic quality ($p < 0.01$, $\beta = 0.540$).

Conclusions: These results emphasize the importance of creating a conducive school environment that supports students' psychological and motivational needs to achieve higher academic quality.

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Introduction

Today, as a result of the growing recognition of the significance of enhancing the quality of life for children and adolescents within educational settings, alongside the imperative for nations to enhance school conduct and promote student well-being, the World Health Organization has brought attention to the vital issue of the quality of life in schools and academic environments ([Saneie & Raeisoon, 2020](#)). The concept of quality of life within educational institutions was initially formulated by [Tangen \(2009\)](#) based on the perceptions and experiences of students regarding their school environment. Quality of life in school is shaped by the unique experiences and perspectives of individual students, making it challenging to establish a universal definition, and is instead characterized by the overall well-being and satisfaction of students stemming from positive and negative encounters encountered during their educational journey ([Karshaky et al., 2014](#)). These diverse encounters contribute to shaping the student's holistic view of their well-being and contentment with school life, reflecting their satisfaction with the daily experiences within the educational setting ([Nikoyeh & Rabieinejad, 2019](#)). The quality of life in school encompasses both formal and informal aspects of the educational environment and is influenced by the collective experiences and relationships shared among peers ([Mo Ching Mok, 2002](#)).

The theoretical framework of quality of life in educational institutions underscores the importance of safety and health, fostering opportunities for continuous development and stability, organizational legitimacy, social interdependence, cohesive social integration within the institution, and the enhancement of human capabilities ([Momeni Mahmoudi et al., 2017](#)). Conversely, school culture garners significant attention from scholars and researchers due to its profound impact on the enhancement and restructuring of educational systems, ultimately elevating the quality of students' academic experiences ([Deal & Peterson, 2016](#)). School culture is a multifaceted amalgamation of traditions and practices that evolve over time through the interactions among educators, students, parents, and administrators, serving to address challenges, resolve issues, and subsequently pass on to forthcoming generations and cohorts of students ([Qalavandi et al., 2014](#)). Within the realm of school culture, emphasis is placed on fostering cooperation, fostering amicable relationships between educators and students, as well as among students themselves, conducting fair evaluations of the educational environment, and nurturing

positive self-perceptions among students towards their academic pursuits and studies ([Truong et al., 2017](#)) High-culture schools provide students with a robust education, instilling valuable skills, fostering responsibility, and encouraging empathy towards others. In these educational settings, students are encouraged to contemplate real-world issues and are provided with the resources to aspire towards a bright and promising future within the educational realm. Consequently, these attributes empower students, fostering a sense of competence and belief in their continuous progress within the school environment on a daily basis ([Mirzaei Fandokht et al., 2020](#)). Conversely, in schools characterized by negative or demotivating cultures, the sense of dedication to the school's mission is lacking. On the other hand, in schools with a robust professional culture, students are immersed in a culture that upholds and enhances academic standards consistently ([Sabanci et al., 2017](#)).

In various research studies, the significance of school culture in influencing the quality of academic life has been substantiated. For instance, a study conducted by [Mirzaei Fandokht et al. \(2020\)](#) demonstrated that meeting basic psychological needs and fostering a positive school culture can enhance academic engagement. Furthermore, it was highlighted that fulfilling basic psychological needs amplifies the connection between school culture and academic participation. Moreover, a study by [Moradi et al. \(2015\)](#) unveiled a significant and positive correlation between the quality of school life and students' sense of belonging to the school community. Moreover, the research findings by [Bull et al. \(2013\)](#) indicated that the quality of school life is interlinked with students' feelings of belonging, increased involvement in academic activities, heightened motivation towards learning, positive attitudes towards school, as well as fostering closer and more meaningful relationships between students and educators. Another pivotal aspect influencing the quality of school life is the operational processes within educational systems. The self-evaluation processes of an individual entail the fulfillment of basic needs within the context they are situated in ([Deci & Ryan, 2008](#)). According to [Skinner et al. \(2009\)](#), the self-system processes encompass three fundamental needs: competence needs, self-adherence needs, and the need for attachment. These needs involve experiencing oneself as capable of achieving desirable outcomes, having autonomy in decision-making and goal-setting, as well as forming secure connections within the social environment. The growth of self-system processes occurs through the dynamic interaction between individuals and their surroundings ([Chi, 1991](#)).

Schools serve as pivotal educational settings where individuals spend a substantial portion of their time. The primary role of schools extends beyond merely enhancing students' academic achievements; it encompasses fostering the holistic development of individuals across physical, emotional, and social dimensions. This holistic approach to education necessitates the presence of high-quality standards within schools, including nurturing effective relationships with peers and educators, promoting mental and physical well-being, providing conducive environments for academic growth, fostering positive emotional experiences, and cultivating meaningful interpersonal connections within the school community ([Salehi, 2019](#)).

In the current study, the significance of the quality of academic life is taken into account, prompting an investigation into the connections between the research variables through direct and indirect pathways. Within this study, the self-system processes regarded as a factor that assumes a mediating function between school culture and the quality of academic life; Consequently, an exploration will be conducted into the various routes and the demonstration of the mediating capacity of said factor in the correlation between environmental and individual elements with the quality of academic life. The primary objective of this study is to make projections regarding the quality of education by leveraging the influence of school culture, with the mediating involvement of self-system processes of students, thus aiming to address the query of whether it is feasible to anticipate the academic quality based on school culture, utilizing the mediating role of self-system processes.

Material and Methods

The ongoing research employs an applied and descriptive-correlational approach in terms of data collection methodology. The statistical population comprised both male and female high school students in Baharestan city in 2023. A total of 300 eligible individuals (including boys and girls in grades 10th, 11th, and 12th) were chosen as the research sample through the implementation of the stratified sampling technique. Utilizing Pearson's correlation coefficient, the examination of the relationship between variables was conducted with the assistance of SPSS version 24 software. Subsequently, the analysis, verification, and determination of path coefficients from the structural equations modeling in Amos were carried out.

Instruments

School culture questionnaire: This questionnaire, consisting of 18 questions, was developed by [Higgins-D'Alessandro and Sath \(1998\)](#) to measure three subscales: student relationships, student-teacher relationships, and educational opportunities using a five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. The scores range between 18 and 90, where higher scores indicate a more significant impact of school culture and vice versa. [Higgins-D'Alessandro and Sath \(1998\)](#) reported a reliability of 0.80 for the student relationship subscale, 0.82 for the student-teacher relationship, and 0.85 for educational opportunities. They also found a correlation of 0.70 with the school climate scale, indicating good validity. [Qalavandi et al. \(2014\)](#) validated its content and reported subscale reliabilities of 0.79, 0.78, and 0.86, respectively, using Cronbach's alpha coefficient.

Self-System Processes Questionnaire: Developed by [Gagné \(2003\)](#), this 9-item scale evaluates the respondent's agreement or disagreement with items related to self-perception of compliance, competence, and connectedness on a five-point scale from 1 (completely disagree) to 5 (completely agree). The scale consists of three items each related to self-adherence, competence, and attachment perceptions. [Gagné \(2003\)](#) confirmed the validity and reliability of the scale, with a Cronbach's alpha coefficient reliability of 0.69 for the three subscales. Koroshnia and Latifian (2010) conducted exploratory factor analysis on the 9-item form, revealing that the three factors identified explained 57.04% of the variance. Cronbach's alpha coefficient was used to verify validity, resulting in values of 0.80, 0.73, and 0.70 for the subscales of self-adherence perception, competence perception, and coherence perception, respectively.

The Quality of Life Scale (QOLS): The questionnaire on the quality of academic life consists of 39 questions developed by [Burckhardt and Anderson \(2003\)](#). It assesses seven dimensions including general satisfaction, negative emotions, teacher relationships, opportunities, progress, adventure, and social cohesion. Participants rate each item on a four-point Likert scale ranging from 1 (strongly disagree) to 4 (I totally agree). [Soltani Shal et al. \(2011\)](#) examined the questionnaire's convergent validity by correlating it with general self-efficacy and adolescent adjustment scales. The content validity was confirmed by expert professors. Furthermore, the questionnaire's reliability was determined using Cronbach's alpha, yielding a value of 0.85.

Results

Demographic information related to the members of the studied sample, including gender and educational level, is presented in Table 1. In Table 2, descriptive information related to the mean and standard deviation along with the correlation coefficients between school culture variables and self-system processes with academic quality are presented. All calculated correlation coefficients were positive and significant at the alpha level of 0.01 ($p < 0.01$). The positivity of the obtained coefficients shows that there is a direct relationship between the variables of school culture and self-system processes with the academic quality of students.

Table 1. Results related to the demographic information of the research sample members

Variable	Categories	Frequency	Percentage
Gender	Female	463	54
	Male	137	46
Grade	10 th	89	30
	11 th	115	38
	12 th	96	32

Table 2. Descriptive findings and correlation coefficients between research variables

Variable	Mean	SD	1	2	3
School culture	54.73	7.855	1		
Self-system processes	34.48	4.600	0.528**	1	
Academic quality	87.50	11.504	0.624**	0.719**	1

** $p < 0.05$

The significance of coefficients provides the necessary prerequisite for path analysis. Before performing the analysis, univariate outlier data were checked using box plot and multivariate outlier data were checked using Mahalanobis distance and excluded from the data set. The skewness and kurtosis of the distribution of variable scores were calculated using SPSS software and the results showed that none of the values of skewness and kurtosis were greater than the range of ± 1 . The normality of the data was checked using the Kolmogorov-Smirnov test. The results showed that the distribution of scores of model variables is normal ($P < 0.05$). The assumption of independence of errors was investigated with Durbin-Watson's statistic to calculate the regression equations of the research model, and the obtained values indicate the establishment of this assumption. The assumption of collinearity between variables was investigated using Pearson correlation between pairs of variables. Considering that the correlation of two variables of 0.9 and

higher indicates collinearity, this problem was not observed in the data of this research. In addition, tolerance statistics and variance inflation factor were calculated in order to investigate multiple collinearities. The results showed that none of the values of the tolerance statistic are smaller than the permissible limit of 0.1 and none of the values of the variance inflation factor are larger than the permissible limit of 10. Therefore, based on the two mentioned indicators, the existence of multiple collinearities was not observed in the data. After examining the assumptions and ensuring their establishment, path analysis was used to evaluate the studied model. The results are presented in Figure 1.

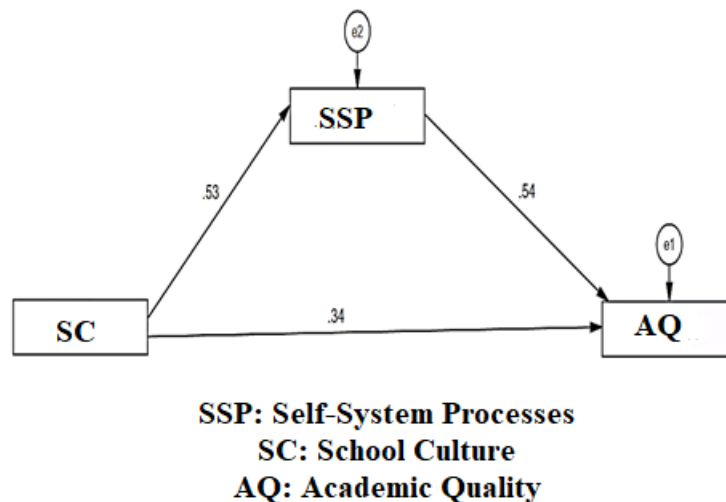


Figure 1. The standard coefficients of the mediating role of self-system processes in the relationship between school culture and academic quality

Figure 1 shows the standard coefficients of the proposed model in order to investigate the mediating role of self-system processes in the relationship between school culture and academic quality. The indices related to the fit of the model are presented in the table 3.

Table 3. Model fit indices

Fit indices	Accepted value	Observed value	Fit indices evaluation
IFI	> 0.90	0.914	Suitable
GFI	> 0.90	0.905	Suitable
RMSEA	< 0.08	0.072	Suitable
SRMR	< 0.08	0.061	Suitable
CFI	> 0.90	0.913	Suitable
NFI	> 0.90	0.910	Suitable

Table 3 shows the fit indices of the model. The goodness-of-fit index of the root variance of the error of approximation (RMSEA) is equal to 0.072 and the square root of the residual mean square (SRMR) is equal to 0.061, which is smaller than the criterion (0.08) and thus confirms the fit of the model. Also, IFI, CFI, GFI, and NFI indices are also greater than the desired criterion (0.9). Therefore, the obtained coefficients indicate the optimal fit of the model.

Table 4. Direct, indirect and total effects between research variables

Path	Direct effect	Indirect effect	Total effect
School culture to self-system process	0.528**	-	0.528**
School culture to academic quality	0.339**	0.286**	0.624**
self-system process to academic quality	0.540**	-	0.540**

** p < 0.05

Based on the obtained results, school culture has a direct positive effect on self-system processes ($\beta=0.528$, $p<0.01$); School culture has an effect on academic quality both directly ($\beta=0.339$, $p<0.01$) and indirectly and by mediating self-system processes ($\beta=0.286$, $p<0.01$). The self-system processes directly have a positive effect on the academic quality ($p < 0.01$, $\beta = 0.540$).

Discussion

In the elucidation of the aforementioned discovery, it can be posited that schools fostering a positive culture offer students the chance to contemplate real-world issues, coupled with the necessary resources to attain a promising future within the educational institution. Consequently, these attributes instill a sense of proficiency in students, thus positively impacting their academic advancement. In essence, it can be asserted that a positive school culture enhances the effectiveness and productivity of the academic institution. Educational establishments characterized by a robust professional culture witness educators upholding consistent standards for learning and development, prioritizing student learning over personal convenience, and believing in the

potential of all students to excel academically. Such schools foster a collaborative environment to tackle challenges, reinforcing strategic planning and decision-making for acquiring information ([Baluchi & Nastiezaie, 2021](#)).

Another observation suggests that a favorable and resilient school culture encompasses various elements such as teachers' professional aptitude, student guidance, faculty interaction and mutual assistance, communication with school leadership and staff, engagement with parents and their supportive presence, access to educational resources, physical infrastructure, students' self-awareness, and diverse skills, as well as socioeconomic background, all of which influence students' learning experiences. Consequently, it is anticipated that such a culture positively impacts the quality of students' academic pursuits.

The stronger the bond between students and educators in the school setting characterized by respect, support, and mutual trust, the more inclined they are to engage freely and communicate openly. A key attribute derived from the school culture is mutual acceptance, unconditional and devoid of constraints. Students exhibit enhanced receptivity to learning when they perceive those individuals within the school community, including teachers and peers, hold them in esteem and are willing to offer help and support when needed. Furthermore, the absence of external judgment and evaluation in student interactions prompts them to evaluate their progress based on internal benchmarks, heightening their sense of competence. Moreover, mutual acceptance and the presence of respect foster genuine and amicable relationships among students, fulfilling their fundamental psychological needs and ultimately enhancing the quality of their academic endeavors ([Mirzaei Fandokht et al., 2020](#)).

One of the constraints of this study was its cross-sectional design, which precluded the establishment of causal relationships among the research variables. It is recommended that educational professionals, administrators, and policymakers within the education sector prioritize the enhancement of students' academic experiences, organizing educational workshops to aid students in comprehending and enhancing their internal processes.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of the Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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