Original Article

Correlations among Personality Traits, Coping Skills, and Competitiveness in Online Learning Environments: A Path Analysis

Rouhoddin Heydari[1], Davood Taghvaei[1]*, Abdoljavad Ahmadi[2], Mohammadmahdi Jahangiri[3]

[1]Department of Psychology, Arak Branch, Islamic Azad University, Arak, Iran
[2]Department of Psychology, Imam Khomeini International University, Qazvin, Iran
[3]Department of Psychology, Mahallat Branch, Islamic Azad University, Mahallat, Iran

ABSTRACT

Background: With the expansion of online classes, student competitiveness has emerged as a key factor in academic success. This study explored the correlations among personality traits, coping skills, and competitiveness in online learning environments, aiming to provide insights for improving online educational programs.

Methods: This study used a correlational research design incorporating path analysis to assess the correlations between independent variables (personality traits and coping skills) and the dependent variable (competitiveness). The study involved 427 second-year high school students from Tehran, Iran, who participated in online classes from November 2022 to February 2023, chosen through cluster sampling. Data were collected using three established instruments: the HEXACO Personality Inventory, Lazarus Coping Styles Questionnaire, and a Competitiveness Scale. Data analysis was conducted using LISREL software version 8.80.

Results: The findings indicate that several personality traits and coping strategies are significantly correlated with competitiveness. Specifically, extraversion ($\beta=0.20$, $r=0.22$, $p=0.0004$), conscientiousness ($\beta=0.13$, $r=0.16$, $p=0.0008$), seeking social support ($\beta=0.13$, $r=0.26$, $p=0.040$), problem-solving coping ($\beta=0.17$, $r=0.28$, $p=0.020$), and positive reappraisal ($\beta=0.19$, $r=0.30$, $p=0.008$) were positively and significantly correlated with competitiveness. Conversely, escape-avoidance coping ($\beta=-0.24$, $r=-0.14$, $p=0.0001$) showed a significant negative correlation. Other traits and strategies, including openness to experience ($\beta=-0.10$, $r=0.03$, $p=0.070$), agreeableness ($\beta=-0.07$, $r=0.07$, $p=0.210$), honesty-humility ($\beta=0.06$, $r=0.05$, $p=0.320$), emotionality ($\beta=-0.01$, $r=0.13$, $p=0.800$), confrontive coping ($\beta=-0.07$, $r=0.04$, $p=0.270$), distancing coping ($\beta=-0.04$, $r=0.08$, $p=0.510$), self-control ($\beta=0.06$, $r=0.17$, $p=0.390$), and responsibility ($\beta=-0.11$, $r=0.15$, $p=0.130$), did not demonstrate statistically significant correlations. The model fit indices confirmed the adequacy of the path analysis model ($\chi^2/df=1.01$, RMSEA=0.02, GFI=0.95).

Conclusion: The findings indicate significant correlations among specific personality traits and coping skills and student competitiveness in online classes. These insights may inform strategies to enhance online educational experiences. It is important to note that, given the correlational nature of the study, the analysis focuses solely on associations rather than causal effects.

Keywords: Coping Skills, Competitive Behavior, Personality Traits, Education, Distance, Path Analysis

*Corresponding author:
Davood Taghvaei,
Department of Psychology,
Arak Branch, Islamic
Azad University, P.O. Box:
567/38135, Arak, Iran
Tel: +98 9900318771
Fax: +98 86 3413 2451
Email:
etlarasanifrakhan@outlook.com

Introduction

In the present era, competitiveness has emerged as one of the key factors in the academic and professional success of students (1, 2). This attribute reflects the ability to optimally exploit opportunities and effectively cope with environmental challenges (3). Due to the swift progress of technology and the growth of the internet, educational systems have experienced significant transformations (4). Among these changes is the emergence of online classes, which, in addition to offering novel opportunities, have introduced unique challenges such as reduced social interactions, feelings of isolation, time management issues, and decreased motivation (5).

In light of the challenges associated with online learning, there is an increasing need to understand individual differences to facilitate adaptation to digital educational environments (6-8). For this reason, personality traits and coping skills have gained significant attention as correlates of students' adjustment and functioning in such settings (9-11). Numerous studies have demonstrated that personality traits such as extraversion, conscientiousness, and resilience (12-14), as well as coping skills like stress management, problem solving, and the use of positive strategies (11, 15, 16), tend to be correlated with better academic outcomes and higher levels of competitiveness. For instance, Li and colleagues (1), along with Al Husaini and Ahmad Shukor (2) have addressed the significance of these factors in academic performance and stress management, while other studies (3-5, 17) have highlighted the role of digital technologies in creating new educational environments.

The conceptual framework outlined in this research is based on existing studies related to competitiveness, personality, and coping skills. Earlier theoretical models (18-24), indicate that the relationships among these factors are intricate; some personality traits may have a direct connection to competitiveness, while coping skills might serve as mediators or moderators within these relationships (13, 20). For instance, individuals who exhibit high levels of extraversion and conscientiousness tend to utilize effective coping strategies—such as problem-solving and seeking social support—when facing challenges in online settings (25, 26). This dynamic can enhance the link between personality traits and students' perceived competitiveness in digital learning environments (27, 28). Moreover, competitiveness can also be understood in group settings, where participation and interaction among individuals, based on different personality traits and stress management approaches, are correlated with better collective educational experiences (25, 29, 30). Consequently, analyzing these intricate relationships at the same time enables a more precise elucidation of the mechanisms through which individual and interactive factors mutually influence one another.

Despite the increasing body of research focusing on personality traits and coping skills in traditional educational settings, studies investigating the impact of these factors on online learning remain limited (10, 27). Many previous studies have relied on limited samples and measurement tools designed for traditional settings (9, 18-23, 25, 29-36); as a result, the full generalizability of their findings to the digital environment remains questionable. Additional limitations involve insufficient focus on the changing relationships between variables in online environments (37), the absence of comprehensive mediation and moderation analyses to better understand the interplay between personality and coping skills, and the overlooking of related cultural and social factors. Thus, a more comprehensive investigation of the correlations among these variables in digital contexts could fill the existing research gap and enhance our understanding of student functioning in contemporary educational environments.

A comprehensive understanding of the relationships between personality traits, coping skills, and competitiveness can yield significant practical benefits. For instance, these findings could guide the development of educational programs that enhance students'

coping strategies and socio-emotional competencies. Although causal inferences cannot be made, the identified correlations may assist in creating supportive policies that foster better student interactions, boost motivation, and enrich academic experiences in online learning environments. To address these questions and fill the aforementioned research gap, the present study employed path analysis. This method was chosen for its capability to simultaneously examine multiple intervariable correlations and to provide a conceptual framework grounded in relevant theories within the domains of personality and coping (38). This conceptual framework establishes the theoretical structure for elucidating the correlations among personality traits, coping skills, and competitiveness, thereby enabling a more precise interpretation of the findings. Accordingly, the primary objective of this study was to examine the impact of personality traits and coping skills on the competitiveness of students in online educational environments.

Methods

Study Design and Setting

This research is a correlational study that utilized path analysis to examine how personality traits and coping strategies affect students' competitiveness in online learning environments. A correlational design was chosen because personality traits and coping skills are naturally occurring variables that cannot be manipulated experimentally (39, 40). This approach is well-suited for investigating the inherent relationships between these variables and their impact on competitiveness in virtual learning environments (39). Additionally, path analysis enables the assessment of both direct and indirect influences of the independent variables on competitiveness (38). This method provides a thorough framework to understand the intricate correlations among these constructs and aligns with the study's objective to identify patterns of association rather than establish causal relationships

(38). The statistical population of this study consisted of all high school students in Tehran, Iran, who attended online classes during the academic period from November 2022 to February 2023.

The conceptual model is grounded in theoretical frameworks related to personality, coping skills, and academic competitiveness within online education. According to personality theories, traits such as extroversion, conscientiousness, and resilience significantly influence academic success (12, 14). Similarly, coping strategies such as problem-solving, seeking social support, and positive reappraisal are effective in managing challenges associated with online education (18, 19).

The model posits that students' competitiveness is influenced by the interplay of personality traits and coping skills. Some traits and strategies may enhance or hinder students' competitive behavior. The correlations between the independent variables (personality traits and coping skills) and the dependent variable (competitiveness) are examined using path analysis. The model's fit is assessed using Goodness-of-Fit Indices (GFI). Figure 1 presents the conceptual framework demonstrating how personality traits and coping skills affect competitiveness in online learning.

Participants and Sampling

The statistical population consisted of all high school students in Tehran who attended online classes during the academic period from November 2022 to February 2023. A priori power analysis was performed using G*Power 3.1 software to estimate the minimum required sample size for the path analysis model. The model included 10 observed predictor variables. Based on a two-tailed test with a significance level of 0.05 and a desired statistical power of 0.95, the minimum required sample size was calculated using the formula for linear multiple regression (fixed model, R^2 deviation from zero). The resulting required sample size was approximately 353 participants. To enhance the reliability of the findings and
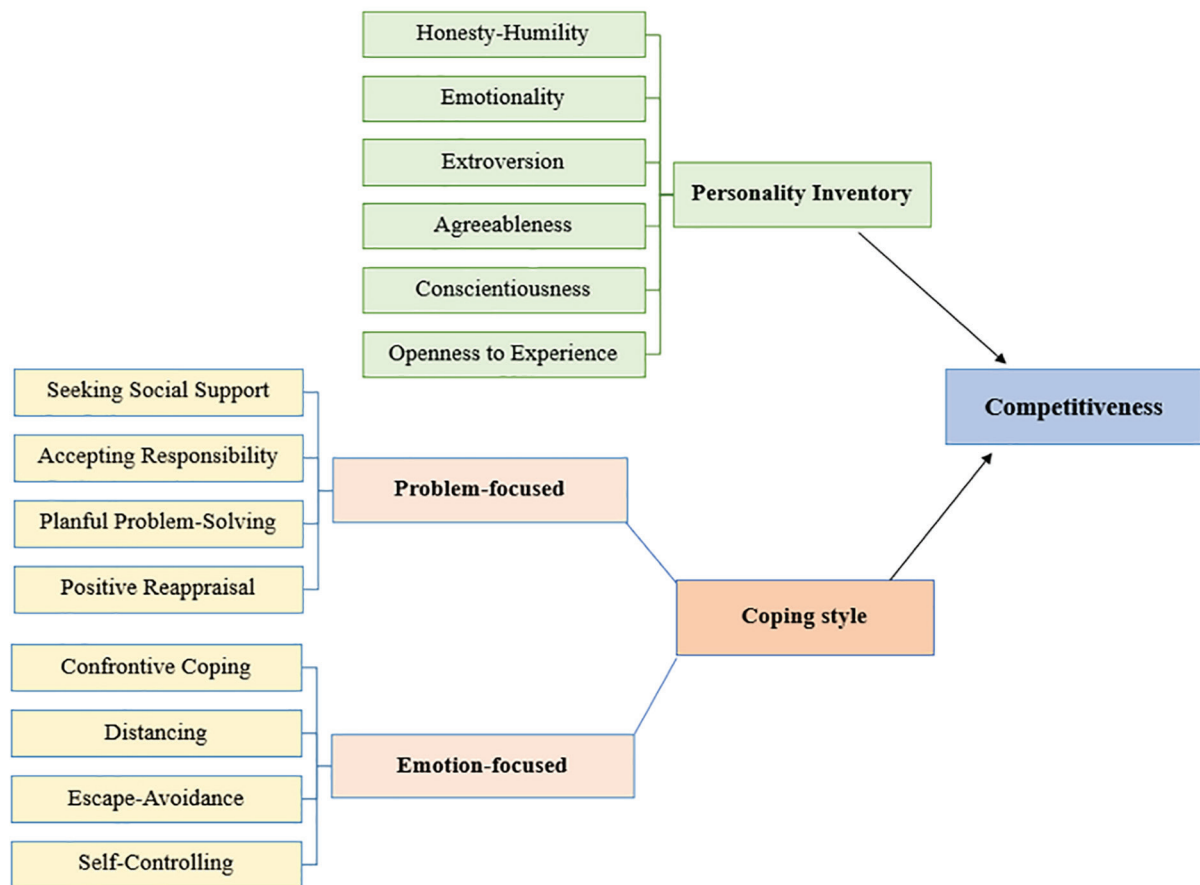
Figure 1: Conceptual model illustrating the impact of personality traits and coping skills on competitiveness

account for potential attrition or incomplete data, the target sample size was increased to 440 students.

The sampling technique employed was cluster sampling. Initially, a complete list of all districts in Tehran was created, and two districts were randomly chosen using Microsoft Excel (41). Each district was given a random number, and the two districts with the lowest numbers were selected. Next, a list of all high schools within the chosen districts was compiled, and four schools (two boys' and two girls' schools) were randomly picked using the same approach. Lastly, three classes from each selected school were randomly selected, and all students in these classes were invited to take part in the study.

To ensure a balanced representation, demographic factors such as gender distribution were considered by selecting an equal number of boys' and girls' schools. Contact information was obtained from the selected schools, and after explaining the research objectives to the students and their parents and obtaining their consent, the research questionnaire link was sent via SMS. Data collection took place from November 2022 to February 2023, and a total of 427 valid questionnaires were completed and analyzed.

Out of the 440 students invited to participate, 427 completed the questionnaires in full. The response rate was calculated as the number of fully completed and eligible questionnaires divided by the total number of students invited ($427 \div 440 \times 100 \approx 97\%$). To enhance the response rate and encourage full participation, several steps were taken: clear instructions were provided within the questionnaire interface, students received reminder messages via SMS, and school administrators reinforced participation through regular communication with students during the data collection period. Additionally, questionnaires were designed to prevent submission unless all mandatory items were completed, reducing the occurrence of partial data.

The study included teenage male students attending selected schools in Tehran who agreed to participate and had parental consent. The exclusion criteria included students who withdrew from the study at any stage, those with serious learning disorders that could affect the research outcomes, and individuals with a history of severe psychological disorders that would prevent engagement in the educational program. These students were identified through school administrators and principals based on academic records, educational assessments, and reports from school counselors indicating significant psychological or learning difficulties.

Tools/Instruments

Three standardized and validated questionnaires were used to measure the research variables: the HEXACO Personality Inventory, the Lazarus Coping Styles Questionnaire, and the Competitiveness Scale. These tools were selected due to their strong psychometric properties and widespread application in both Iranian and international studies. All instruments demonstrated acceptable validity and reliability, with high Cronbach's alpha coefficients obtained in the present study.

HEXACO Personality Inventory: The HEXACO Personality Inventory comprises 60 items evaluated on a 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree), yielding a total score range from 60 to 300. It assesses six personality dimensions: Honesty-Humility (10 items; score range: 10–50), Emotionality (10 items; score range: 10–50), Extroversion (10 items; score range: 10–50), Agreeableness (10 items; score range: 10–50), Conscientiousness (10 items; score range: 10–50), and Openness to Experience (10 items; score range: 10–50).

Validity and Reliability - The instrument's validity has been confirmed through correlations with other personality measures in various studies, and its Cronbach's alpha coefficients have been reported between 0.80 and 0.97, indicating high internal consistency (42). The Persian version was standardized by Panahali and colleagues in 2010, demonstrating an overall Cronbach's alpha of 0.91, with subscale alphas ranging from 0.81 to 0.82 (43). In the present study, the overall Cronbach's alpha was 0.85, with subscale alphas between 0.81 and 0.89. It is noteworthy that, to date, no study has evaluated the content validity of this instrument through Content Validity Index (CVI) and Content Validity Ratio (CVR). This instrument was chosen due to its comprehensive assessment of personality traits and strong psychometric properties in Iranian samples.

Lazarus Coping Styles Questionnaire: The Lazarus Coping Styles Questionnaire comprises 66 items rated on a 4-point Likert scale (1=Never to 4=Often), assessing eight coping strategies categorized into problem-focused and emotion-focused styles. Problem-focused strategies include Seeking Social Support (6 items; score range: 6–24), Accepting Responsibility (4 items; score range: 4–16), Planful Problem-Solving (6 items; score range: 6–24), and Positive Reappraisal (6 items; score range: 6–24). Emotion-focused strategies encompass Confrontive Coping (6 items; score range: 6–24), Distancing (6 items; score range: 6–24), Escape-Avoidance (8 items; score range: 8–32), and Self-Controlling (7 items; score range: 7–28).

Validity and Reliability - The original instrument's validity and reliability have been supported through various studies. In Iran, Baghcheghi and Koohestani (2021) developed and assessed the psychometric characteristics of a Coping Strategies Scale aimed at family caregivers of hemodialysis patients. During the content validity evaluation, 13 of the 68 items showed a CVR lower than 0.636; however, four of these items were retained due to their significance and research team consensus. Subsequently, the CVI for the scale was 0.97, with 56 items achieving a CVI above 0.80, indicating high content validity. The scale's reliability was confirmed with a Cronbach's alpha of 0.91 and a test-retest Intraclass Correlation Coefficient (ICC) of

0.90 (44). In the present study, the overall Cronbach's alpha for the Lazarus Coping Styles Questionnaire was 0.89, with subscale alphas ranging from 0.81 to 0.96, indicating high internal consistency. This instrument was selected due to its extensive use in coping strategy research and its strong psychometric properties in Iranian populations.

Competitiveness Scale: This scale comprises 16 items divided into three dimensions: Deviant Learning (7 items; score range: 7–35), Deviant Educational Activities (5 items; score range: 5–25), and Social Relationships (4 items; score range: 4–20), with an overall total score range of 21 to 105, where higher scores indicate greater competitive behavior.

Validity and Reliability - In Iran, the content validity of the questionnaire was assessed using the CVR and CVI, yielding values above 0.49 and 0.79, respectively. The reliability of this Persian version was confirmed with an overall Cronbach's alpha of 0.865, and subscale values ranging from 0.880 to 0.915 (45). In the present study, Cronbach's alpha was 0.85 for the entire scale and between 0.81 and 0.89 for the subscales. This instrument was chosen due to its relevance to competitive behavior in academic settings and its established validity and reliability in Iranian samples.

Data Analysis

The data were analyzed using descriptive statistics, including mean and standard deviation, as well as inferential statistics, specifically path analysis. In this study, path analysis was conducted to examine the direct effects of personality traits and coping styles on competitiveness in online classrooms, using LISREL software version 8.80 and the Maximum Likelihood Estimation method. The direct effects were evaluated through standardized path coefficients and significance tests based on t-values and p-values. Model fit was assessed using several indices, including the Root Mean Square Error of Approximation (RMSEA), the Chi-square to degrees of freedom ratio (χ^2/df),

and incremental fit indices such as the GFI, Adjusted Goodness-of-Fit Index (AGFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), and Incremental Fit Index (IFI).

The selection of these fit indices was based on the nature of our data. Our dataset comprises continuous variables that are assumed to follow a multivariate normal distribution. The GFI and AGFI indices provide an absolute measure of fit by assessing the discrepancy between the observed and the estimated covariance matrices, making them suitable for evaluating the overall model fit in our context. Meanwhile, the incremental indices (NFI, CFI, and IFI) compare the hypothesized model against a null model, thereby indicating the extent of improvement in model performance over baseline expectations. This combination of indices offers a comprehensive evaluation of model adequacy and ensures robust assessment of the structural model.

Acceptable cut-off values were considered as follows: RMSEA less than 0.08, CFI and Tucker-Lewis Index (TLI) greater than 0.90, and χ^2/df less than 3.00 (46-49).

Given that the online questionnaire was designed to require responses for all mandatory items before submission, missing data were minimal. Nonetheless, any remaining missing data were examined to determine the pattern of missingness. Under the assumption that data were Missing At Random (MAR), the Full Information Maximum Likelihood (FIML) approach available within LISREL was employed (50). This method uses all available data to provide unbiased parameter estimates and is preferred over listwise deletion when dealing with small amounts of missing data. The age distribution of respondents is divided into two groups: "16 years old or younger" (172 respondents, 40.28%) and "over 16 years old" (255 respondents, 59.72%). The gender distribution consists of 193 males (45.20%) and 234 females (54.80%). The majority of respondents are enrolled in the humanities (205 students, 48.01%), followed by the experimental sciences (130 students, 30.44%) and mathematics (92 students, 21.55%). The

class distribution shows that 10th grade is the most common (171 students, 40.05%), followed by 12th grade (143 students, 33.49%) and 11th grade (113 students, 26.46%) (Table 1).

Ethics - This study was approved by the Ethics Committee of Islamic Azad University of Arak, Iran. Informed consent was obtained from both students and their parents prior to their participation. Clear and comprehensive explanations were provided regarding the study's objectives, procedures, participants' rights—including their right to withdraw at any stage—and confidentiality of their information. Consent forms were provided to participants and their parents, and survey links were sent via SMS only after signed consent forms were obtained. The entire research process adhered strictly to the ethical guidelines set forth in the Helsinki Declaration.

Table 1 displays the demographic breakdown of the sample, showing a higher proportion of individuals aged over 16and a slight majority of female respondents. The Humanities was the most represented field, and the Distribution across Grades was relatively balanced.

Descriptive statistics for the research variables are summarized in Table 2. The average Competitiveness Score was 51.96±6.56. The mean scores for personality traits were as follows: Openness to Experience averaged 31.73±4.18, Conscientiousness was 32.10±4.21, Agreeableness stood at 32.03±4.71, Extroversion was 30.87±3.86, Honesty-Humility averaged 30.46±4.27, and Emotionality was 31.60±4.03. For the coping strategies, Confrontive Coping had

a mean of 7.86±3.40, Distancing Coping was 8.31±3.37, Self-control had 11.48±3.99, Seeking Social Support was 9.91±3.80, Responsibility averaged 6.98±2.60, Escape-Avoidance Coping was 10.11±4.53, Problem-Solving Coping stood at 10.55±3.60, and Positive Reappraisal was 12.51±3.90.

Table 2 succinctly displays the study's variables by providing their central tendency (Mean), variability (Standard Deviation), and range, giving a clear overview of the data distribution.

The intercorrelations between study variables are reported in Table 3. Each bivariate correlation is accompanied by its exact p-value in parentheses. For instance, the correlation between competitiveness and openness to experience is shown as 0.03 (p=0.832).

The proposed structural model has an excellent fit to the data. The chi-square to degrees of freedom ratio is 1.01 (well below the threshold of 3). The indices GFI, AGFI, NFI, CFI, and IFI are all above the recommended minimum of 0.90 (GFI=0.95 is reported) (49). The Parsimony-Adjusted Measures Index (PNFI) is 0.95 (above 0.50), and RMSEA is 0.02 (within the acceptable limit of <0.08) (51). According to the LISREL analysis, the model is at a "saturated" level (p=0.0003, indicating a perfect fit) (Figures 2 and 3) (52).

The results indicate that Openness to Experience was not significantly correlated with competitiveness, as it showed a standardized coefficient of −0.10, a t-value of −1.86, and a p-value of 0.070. In contrast,

Table 1: Demographic information of the participants

Feature	Category	Frequency	Percentage (%)
Age distribution	16 years old or less	172	40.28
	Over 16 years	255	59.72
Gender distribution	Male	193	45.20
	Female	234	54.80
Field of study	Humanities	205	48.01
	Experimental sciences	130	30.44
	Mathematics	92	21.55
Class distribution	Grade 10	171	40.05
	Grade 12	143	33.49
	Grade 11	113	26.46

Table 2: Descriptive statistics of the research variables

Variable	Mean±SD	Minimum	Maximum
Competitiveness	51.96±6.56	16	64
Openness to Experience	31.73±4.18	10	44
Conscientiousness	32.10±4.21	11	47
Agreeableness	32.03±4.71	10	47
Extroversion	30.87±3.86	14	46
Honesty-Humility	30.46±4.27	10	47
Emotionality	31.60±4.03	10	46
Confrontive Coping	7.86±3.40	0	18
Distancing Coping	8.31±3.37	0	18
Self-Control	11.48±3.99	0	21
Seeking Social Support	9.91±3.80	0	18
Responsibility	6.98±2.60	0	12
Escape-Avoidance Coping	10.11±4.53	0	24
Problem-Solving Coping	10.55±3.60	0	18
Positive Reappraisal	12.51±3.90	0	21

Table 3: Bivariate correlation matrix of the research variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Competitiveness	1.00	0.03	0.16	0.07	0.22	0.05	0.13	0.04	0.08	0.17	0.26	0.15	-0.14	0.28	0.30
2. Openness to Experience		1.00	0.45	0.42	0.40	0.45	0.39	0.22	0.27	0.26	0.17	0.18	0.23	0.17	0.19
3. Conscientiousness			1.00	0.47	0.50	0.47	0.47	0.34	0.32	0.30	0.24	0.26	0.32	0.21	0.22
4. Agreeableness				1.00	0.46	0.43	0.41	0.33	0.30	0.36	0.29	0.32	0.30	0.27	0.25
5. Extraversion					1.00	0.42	0.44	0.25	0.29	0.26	0.26	0.20	0.26	0.20	0.21
6. Honesty-Humility						1.00	0.47	0.31	0.26	0.27	0.12	0.20	0.36	0.12	0.12
7. Emotionality							1.00	0.28	0.29	0.31	0.33	0.27	0.28	0.28	0.29
8. Confrontation								1.00	0.53	0.50	0.47	0.50	0.57	0.47	0.45
9. Avoidance									1.00	0.55	0.49	0.50	0.52	0.48	0.50
10. Self-Control										1.00	0.47	0.65	0.44	0.64	0.61
11. Seeking Social Support											1.00	0.56	0.21	0.59	0.62
12. Responsibility												1.00	0.37	0.68	0.66
13. Avoidance-Escape													1.00	0.25	0.22
14. Problem-Solving & Planning														1.00	0.74
15. Positive Reappraisal															1.00

* Correlation coefficients ≥0.10 are significant at the 0.05 level; coefficients ≥ 0.13 are significant at the 0.01 level.

Conscientiousness showed a significant positive correlation with competitiveness, with a standardized coefficient of 0.13, a t-value of 2.22, and a p-value of 0.0008. Agreeableness did not show a significant correlation, given its standardized coefficient of –0.07, t-value of –1.26, and p-value of 0.210. Meanwhile, Extraversion demonstrated a significant positive correlation with competitiveness, as evidenced by a standardized coefficient of 0.20, a t-value of 3.57, and a p-value of 0.0004 (Figures 2 and 3; Table 4).
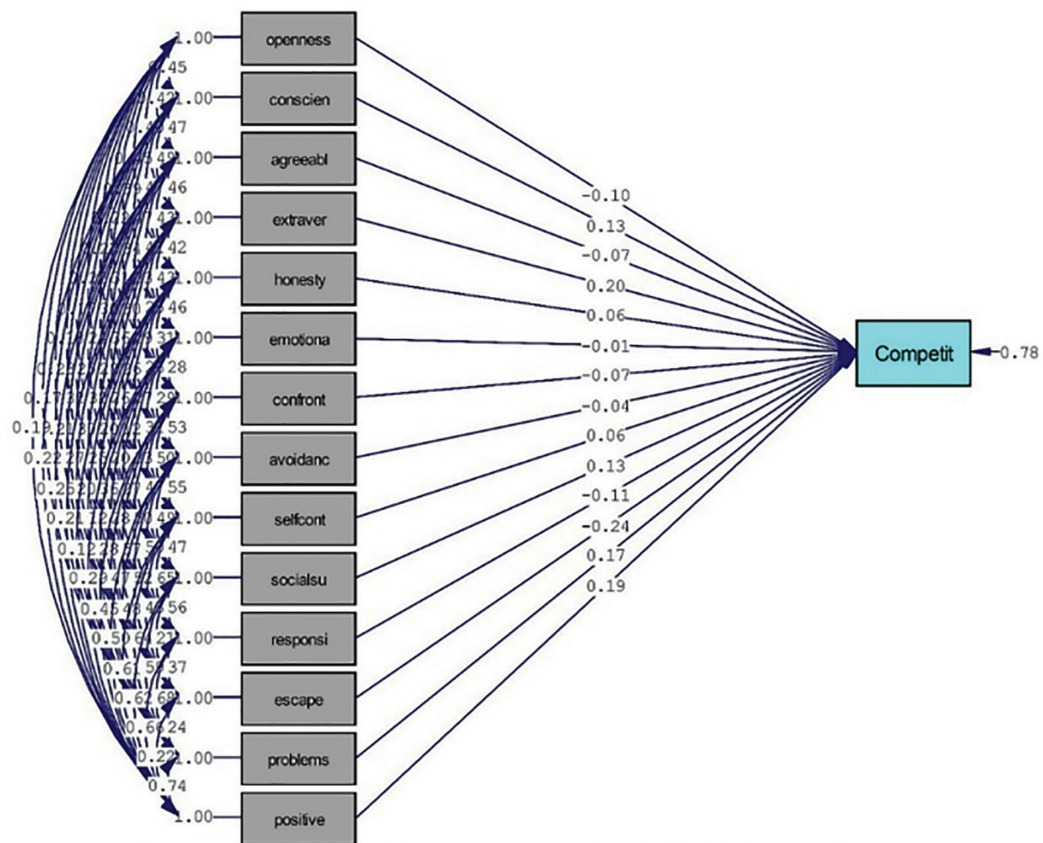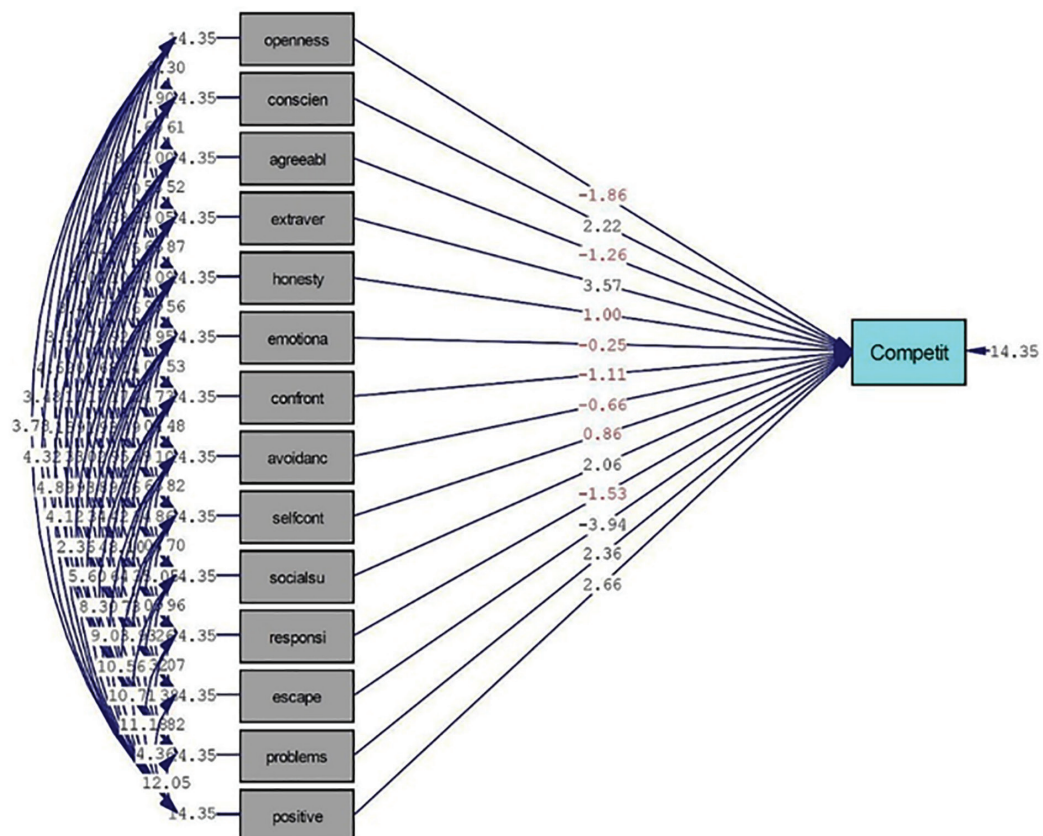
Figure 2: Model standardized coefficients

Figure 3: Model significance coefficients

Table 4: Direct effects in the conceptual model

Independent Variable	Dependent Variable	Standardized Coefficient (β)	t-value	P value
Openness to Experience	Competitiveness	−0.10	−1.86	0.070
Conscientiousness	Competitiveness	0.13	2.22	0.0008
Agreeableness	Competitiveness	−0.07	−1.26	0.210
Extroversion	Competitiveness	0.20	3.57	0.0004
Honesty-Humility	Competitiveness	0.06	1.00	0.320
Emotionality	Competitiveness	−0.01	−0.25	0.800
Confrontive Coping	Competitiveness	−0.07	−1.11	0.270
Distancing Coping	Competitiveness	−0.04	−0.66	0.510
Self-Control	Competitiveness	0.06	0.86	0.390
Seeking Social Support	Competitiveness	0.13	2.06	0.040
Responsibility	Competitiveness	−0.11	−1.53	0.130
Escape-Avoidance Coping	Competitiveness	−0.24	−3.94	0.0001
Problem-Solving Coping	Competitiveness	0.17	2.36	0.020
Positive Reappraisal	Competitiveness	0.19	2.66	0.008

Furthermore, Honesty-Humility was not significantly correlated with Competitiveness, with a standardized coefficient of 0.06, a t-value of 1.00, and a p-value of 0.320. Similarly, Emotionality did not exhibit a significant correlation with Competitiveness, as it showed a standardized coefficient of −0.01, a t-value of −0.25, and a p-value of 0.800. The Coping strategy of Confrontive Coping was not significantly correlated with Competitiveness (standardized coefficient=−0.07, t-value=−1.11, p=0.270), and Distancing Coping also showed no significant correlation, with a standardized coefficient of −0.04, a t-value of −0.66, and a p-value of 0.510 (Figures 2 and 3; Table 4).

Self-Control was not found to have a statistically significant correlation, indicated by a standardized coefficient of 0.06, a t-value of 0.86, and a p-value of 0.390. Conversely, Seeking Social Support exhibited a significant positive correlation with competitiveness, with a standardized coefficient of 0.13, a t-value of 2.06, and a p-value of 0.040. Responsibility also did not demonstrate a significant correlation, as reflected by a standardized coefficient of −0.11, a t-value of −1.53, and a p-value of 0.130 (see Figures 2 and 3; Table 4).

In addition, Escape-Avoidance Coping demonstrated a significant negative correlation with Competitiveness, reflected by a standardized coefficient of −0.24, a t-value of −3.94, and a highly significant p-value of 0.0001. Problem-Solving Coping was positively and significantly correlated with Competitiveness, with a standardized coefficient of 0.17, a t-value of 2.36, and a p-value of 0.020. Lastly, Positive Reappraisal was also positively and significantly associated with Competitiveness, as indicated by a standardized coefficient of 0.19, t-value of 2.66, and p-value of 0.008 (see Figures 2 and 3; Table 4).

Table 4 presents the correlations among various independent variables and competitiveness. It includes precise p-values that indicate the statistical significance of each predictor. Significant correlations are found for conscientiousness, extroversion, seeking social support, escape-avoidance coping, problem-solving coping, and positive reappraisal. Conversely, the remaining variables do not show any significant direct correlations.

Standardized coefficients (β) allow for comparison of the relative strength of each predictor's association with competitiveness. Among significant predictors, extroversion (β=0.20) and positive reappraisal (β=0.19) exhibited the strongest positive correlation with competitiveness, suggesting that individuals high in these traits are more likely to exhibit competitive behaviors. Escape-avoidance coping (β=−0.24) shows a strong negative correlation with competitiveness,

indicating that reliance on avoidant strategies may correlate with reduced competitive tendencies. Conscientiousness (β=0.13) and seeking social support (β=0.13) also show positive correlations, but with a moderate strength. Problem-solving coping (β=0.17) shows a moderate-to-strong correlation, implying that active coping tends to be positively associated with competitiveness. Variables with non-significant β values ($p>0.05$) are considered to have negligible or statistically unsupported correlations in this model.

Discussion

The research examined the impact of personality traits and coping skills on students' competitiveness in online learning environments using path analysis, acknowledging that some traits and methods can either enhance or hinder competitive behavior. The findings indicated that the trait of "openness to experience" did not show a significant correlation with competitiveness. This is in contrast with prior studies emphasizing openness as a factor in promoting creativity and adaptability in education (25, 31). Psychologically, open individuals seek novelty and depend on in-person interactions—such as group discussions and collaborative projects—to channel their creative and competitive impulses. In online settings, however, abundant resources encourage self-directed learning, which can eclipse traditional competitive drives. Culturally, Iran's educational system emphasizes memorization and written/oral exams rather than individual creativity, further diminishing openness's influence on performance in virtual exams. Methodologically, the Persian HEXACO inventory may contain items emphasizing in-person manifestations of openness (e.g., preference for group activities) that do not translate well to virtual environments. Variations in sample size, participants' prior online-learning experience, and demographic composition could also explain discrepancies with other studies. Finally,

limited synchronous interaction and the self-regulatory character of online courses restrict opportunities for open students to demonstrate competitive creativity, accounting for the lack of association (51).

Regarding "agreeableness," the results also showed no significant correlation with competitiveness. This finding diverges from research that links agreeableness with collaboration and social functioning (9, 10). Psychologically, highly agreeable individuals favor harmonious interactions and avoid direct confrontation; in face-to-face group settings, this can enhance empathic participation and team success. However, limited collaborative opportunities in online competitive tasks prevent these positive aspects from emerging. Culturally, Iran's focus on individual grades and rankings de-emphasizes formal collaborative activities, so agreeable students often prioritize cooperation over direct competition. Methodologically, the Persian HEXACO agreeableness scale emphasizes empathy and cooperation—dimensions less visible online—weakening its ability to detect any effect. Reduced peer interaction in virtual education further diminishes observable cooperative behaviors, explaining the non-significant result (40).

By contrast, "extraversion" exhibited a significant positive correlation with competitiveness, aligning with several previous studies (9, 34, 36). Extraverts derive energy from social engagement; in face-to-face classes, active participation and lively discussions bolster their competitive motivation. In online settings, they replicate this engagement through discussion boards, live chats, and virtual groups, maintaining the link between extraversion and competitiveness (52). Culturally, as Tehran's institutions place more value on group participation even in virtual classrooms, extraverted students can leverage online platforms to engage in social competition. Methodologically, the Persian HEXACO extraversion scale successfully captures online interactive behaviors—such as contributing to forums—aligning with international findings. Features like real-time

Q&A sessions and video lectures also foster an environment conducive to extraverted competitiveness (53).

"Honesty-humility" did not significantly correlate with competitiveness, a finding inconsistent with research highlighting its role in ethical behavior and prosocial teamwork (10). Psychologically, honest–humble individuals prioritize ethics and avoid unfair competition; in face-to-face contexts, this may lead them to support teammates and enhance group performance. However, the online environment emphasizes individual scores, limiting opportunities for ethical or team-oriented expressions of this trait. From a cultural perspective, Iran's focus on individual assignments and assessments—with fewer formal group tasks—means honesty–humility, which often manifests through group empathy, confers no competitive advantage. Methodologically, online measures of honesty–humility may not capture complex ethical dimensions in virtual settings, and the absence of real-time behavioral data restricts accurate analysis. Reduced face-to-face interaction and limited team activities in online education further obscure any influence of this trait on competitiveness (50).

"Emotionality" was also found to have no significant correlation with competitiveness. While prior studies suggest that high emotionality may hinder academic performance due to anxiety or stress (31, 35, 36). Psychologically, highly emotional individuals may experience exam-related anxiety and perform poorly under pressure. Online environments, however, offer self-soothing options—such as pausing lectures and taking breaks—that reduce stress, allowing these students to manage emotions and diminishing emotionality's impact on performance. Culturally, Iran's strong family and community support during academic stress can further buffer emotional distress (54). Technically, self-report questionnaires may not capture emotionality's nuances in virtual contexts, and failing to assess mediating factors like family or peer support

limits understanding. Online features—such as revisiting content and multiple exam attempts—lower emotional pressure, neutralizing any potential negative effect on competitiveness (55).

In terms of coping strategies, "confrontive coping" indicated no significant correlation with competitiveness, which contrasts with findings in traditional classroom studies (18, 19). Psychologically, confrontive coping involves directly engaging stress sources (e.g., confronting a peer); online, opportunities for immediate confrontation are scarce, and there is no avenue for instant disagreement. Socially, Iranian students typically seek resolution from instructors rather than direct peer confrontation, so they tend to refer issues to teachers in virtual settings. Methodologically, the Persian Lazarus coping questionnaire emphasizes in-person confrontive elements that are attenuated or absent online. Moreover, online education's lack of synchronous audio or video interaction creates barriers, reducing confrontive coping opportunities and eliminating its impact on competitiveness (56).

Conversely, "escape-avoidance coping" had a significant negative correlation with competitiveness, in line with previous literature (21). Psychologically, individuals who avoid stressors tend to withdraw from competitive activities or give up after setbacks, reducing their progress in online exams. Culturally, fear of failure and social shame in Iran can lead students to avoid participation when facing technological difficulties or early failures online. Structurally, although the Lazarus questionnaire relies on self-report—potentially leading to underreporting—the strong negative correlation indicates that avoidance reliably predicts reduced competitiveness. Furthermore, online features—like the ability to disconnect, skip classes, or exit sessions—provide easy withdrawal options, allowing avoidant individuals to remove themselves from competitive environments and thus lowering their competitiveness (57).

"Self-control" did not show a significant

correlation with competitiveness, which differs from some prior studies (23). Psychologically, self-controlled individuals manage impulses and regulate emotions, which supports focus in face-to-face exams. In online settings, however, the flexibility to pause videos and revisit material reduces the immediate need for self-control, diluting its direct effect on competitiveness. From the cultural perspective, in Iran, self-control skills are typically cultivated through traditional assignments and exams; with online exams offering delayed feedback and less time pressure, even students with lower self-control can compete effectively. Methodologically, the self-control scale may target immediate impulse control rather than long-term planning or managing multiple sessions, failing to capture its full dimensions in an online environment. Online education's flexibility—allowing learners to return to lessons at their own pace—further diminishes self-control's influence (36).

"Seeking social support" was positively and significantly correlated with competitiveness, reinforcing findings that social backing enhances motivation and reduces academic anxiety (22, 29). Intellectually, seeking support entails exchanging information, receiving feedback, and collaborating with peers or instructors, boosting self-efficacy and confidence, which enables more active participation in online competitive tasks. Collectively, Iran's culture highly values family and group support; students who seek assistance from peers or elders feel more secure and exhibit stronger competitive motivation. Methodologically, the localized Lazarus questionnaire effectively captures social support elements across educational contexts, and sampling Tehran schools accurately reflects students' social networks. Online features—such as virtual discussion forums, messaging groups (e.g., WhatsApp, Telegram), and informal communication with teachers—continue to facilitate social support, underscoring the importance of concurrent discussion spaces in educational platforms to leverage this coping style and

enhance competitiveness (25).

"Problem-solving" coping also showed a significant positive correlation with competitiveness, consistent with studies emphasizing active coping in achieving academic goals (23, 30). Psychologically, this style reflects the ability to identify challenges and generate practical solutions; students with strong problem-solving skills perform better in timed online exams and feel more confident, bolstering their competitiveness. Culturally, Iran's education system emphasizes step-by-step problem analysis and precise solution finding from early schooling, making problem-solving a common and effective skill in virtual environments. Methodologically, the Persian Lazarus questionnaire accurately measures problem-solving dimensions in both face-to-face and online contexts, and the large sample size ensures meaningful statistical results. Furthermore, online features—such as self-directed resources (videos, question banks) and real-time access to guidance—facilitate problem-solving, enhancing this style's positive impact on competitiveness (18).

Lastly, "positive reappraisal" also demonstrated a significant positive correlation with competitiveness. This adaptive coping strategy—reframing academic challenges as opportunities—helps students stay resilient and proactive under pressure (29, 30, 36). Psychologically, positive reappraisal involves reframing stressful situations as growth opportunities; students with this skill view competitive challenges as chances to improve and feel less pressured (58). Culturally, Iran's recent emphasis on critical thinking and intrinsic motivation encourages a positive attitude toward failure, making positive reappraisal more prevalent. Methodologically, the Persian Lazarus questionnaire covers both behavioral and cognitive aspects of this style, and path analysis revealed its direct effect on competitiveness (59). Additionally, online features—such as the ability to revisit content, rewatch videos, and access supplementary guidance—enable students to approach errors with a fresh perspective, allowing positive reappraisal to strengthen

competitiveness in virtual settings (60).

In summary, the pattern of correlations observed in this study illustrates the complex interplay between personality traits, coping mechanisms, and competitiveness in virtual education. While some traits (e.g., extraversion) and coping styles (e.g., problem-solving, seeking support) enhance competitive behaviors, others (e.g., avoidance coping) reduce them. These findings carry important implications for educators, psychologists, and policy-makers aiming to optimize student performance in digital learning environments. Future program designs should foster adaptive traits and coping mechanisms while also accounting for the specific challenges posed by cultural context and virtual modalities.

Limitations and Suggestions

Given the cross-sectional nature of this research and its focus on high school students in Tehran, future research should use longitudinal and mixed-methods designs to explore changes over time and capture deeper behavioral insights. The cross-sectional design prevents causal inference, and depending on self-reported data may lead to biases. Additionally, exploring mediating and moderating variables—such as motivation, digital literacy, and family support—may offer a more comprehensive understanding of how personality and coping processes interact to influence competitiveness in diverse educational environments.

It is advisable to replicate the study across various geographical locations and educational contexts, while also including culturally relevant factors and observational techniques to gain a deeper insight into how personality traits and coping strategies influence student competitiveness in online learning.

Conclusion

This study examined the correlations among personality traits, coping strategies, and student competitiveness in online learning environments. The findings demonstrated that specific personality traits—particularly extraversion and conscientiousness—as well as coping strategies such as problem-solving, seeking social support, and positive reappraisal, are positively correlated with higher levels of competitiveness. Conversely, escape-avoidance coping showed a significant negative correlation with competitiveness. These results highlight the importance of fostering adaptive traits and coping mechanisms to promote student success in virtual educational contexts.

From a practical standpoint, these findings offer valuable insights for educators, counselors, and policymakers. Developing tailored interventions that strengthen students' adaptive personality traits and coping skills could enhance academic motivation and engagement. Educational programs may benefit from incorporating training modules on effective stress management, problem-solving, and emotional regulation to support students' psychological resilience and competitive behavior in online settings.

Moreover, the study underscores the importance of integrating socio-emotional learning components into online curricula to facilitate active participation and collaborative learning. Such initiatives could mitigate the negative impact of maladaptive coping styles and encourage students to develop constructive strategies in the face of digital learning challenges.

Abbreviations

AGFI: Adjusted Goodness-of-Fit Index
CFI: Comparative Fit Index
CVI: Content Validity Index
CVR: Content Validity Ratio
GFI: Goodness-of-Fit Index
HEXACO: Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, Openness to Experience
IFI: Incremental Fit Index
NFI: Normed Fit Index
PNFI: Parsimony-Adjusted Measures Index
RMSEA: Root Mean Square Error of Approximation
TLI: Tucker-Lewis Index

Conflict of Interest

The authors affirm that there are no financial or personal relationships that could be perceived as potential conflicts of interest.

Ethical Considerations

This study was conducted in accordance with ethical standards and received approval from the Research Ethics Committee of Islamic Azad University, Arak Branch, Iran (registration number IR.IAU.ARAK. REC.1400.015). Informed consent was obtained from both the students and their parents prior to participation. Participants were provided with clear and comprehensive information regarding the study's objectives, procedures, their rights—including the right to withdraw at any point—and the confidentiality of their data. The research strictly followed the ethical guidelines established by the Helsinki Declaration.

Availability of Data and Materials

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

References

1   Li G, Li Z, Wu X, Zhen R. Relations Between Class Competition and Primary School Students' Academic Achievement: Learning Anxiety and Learning Engagement as Mediators. Front Psychol. 2022;13:775213. doi: 10.3389/fpsyg.2022.775213. PubMed PMID: 35282231; PubMed Central PMCID: MCPMC8904934.

2   Al Husaini Y, Ahmad Shukor NS. Factors Affecting Students' Academic Performance: A review. Res Militaris. 2022;12(6).

3   Haleem A, Javaid M, Qadri MA, Suman R. Understanding the role of digital technologies in education: A review. Sustain Oper Comput. 2022;3:275-85. doi: 10.1016/j.susoc.2022.05.004.

4   Kamraju M, Krishnaiah J, Guntipalli D, Shaba N, Begum S, Fatima N, Madhuri Y. Exploring the Impact of Online Education on Higher Education. ASEAN Journal on Science and Technology for Development. 2024;03:27-36.

5   Akpen CN, Asaolu S, Atobatele S, Okagbue H, Sampson S. Impact of online learning on student's performance and engagement: a systematic review. Discov Educ. 2024;3(1):205. doi: 10.1007/s44217-024-00253-0.

6   Sanjari S, Mohammadi Soleimani M. Validation of the knowledge sharing behavior scale among nursing and midwifery faculty members in Iran: Psychometric properties and cross-cultural adaptation. Middle East J Rehabil Health Stud. 2024;11(1):e134886. doi: 10.5812/mejrh-134886.

7   Khojasteh L, Karimian Z, Farahmandi AY, Nasiri E, Salehi N. E-content development of English language courses during COVID-19: a comprehensive analysis of students' satisfaction. Journal of Computers in Education. 2023;10(1):107-33. doi: 10.1007/s40692-022-00224-0.

8   Karimian Z, Mokarram P, Zarifsanaiey N. Comparison of the teaching clinical biochemistry in face-to-face and the flex-flipped classroom to medical and dental students: a quasi-experimental study from

IRAN. BMC Med Educ. 2024;24(1):137. doi: 10.1186/s12909-024-05051-8. PubMed PMID: 38350863; PubMed Central PMCID: PMC10863239.

9   Fong M, Zhao K, Smillie LD. Personality and competitiveness: Extraversion, agreeableness, and their aspects, predict self-reported competitiveness and competitive bidding in experimental auctions. Pers Individ Dif. 2021;169:109907. doi: 10.1016/j.paid.2020.109907.

10 Graziano WG, Hair EC, Finch JF. Competitiveness mediates the link between personality and group performance. J Pers Soc Psychol. 1997;73(6):1394–1408. doi: 10.1037//0022-3514.73.6.1394.

11 Ramoshaba J, Kgarose M. Analysing coping strategies of students for online teaching and learning during the Covid-19 pandemic. International Journal of Research in Business and Social Science. 2022;11:343-7. doi: 10.20525/ijrbs.v11i9.2192.

12 Kara A, Ergulec F, Eren E. The mediating role of self-regulated online learning behaviors: Exploring the impact of personality traits on student engagement. Educ Inf Technol (Dordr). 2024;29(17):23517-46. doi: 10.1007/s10639-024-12755-3.

13 Baruth O, Cohen A. Personality and satisfaction with online courses: The relation between the Big Five personality traits and satisfaction with online learning activities. Educ Inf Technol (Dordr). 2023;28(1):879-904. doi: 10.1007/s10639-022-11199-x.

14 Fu P, Gao C, Chen X, Zhang Z, Chen J, Yang D. Proactive personality and its impact on online learning engagement through positive emotions and learning motivation. Scientific Reports. 2024;14(1):28144. doi: 10.1038/s41598-024-79776-3.

15 Tamannaeifar M, Shahmirzaei S. Prediction of Academic Resilience Based on Coping Styles and Personality Traits. Practice in Clinical Psychology. 2019;7(1):1-10. doi: ⌐10.32598/jpcp.7.1.1.

16 Liu A, Yu Y, Sun S. How is the Big Five related to college students' anxiety: The role of rumination and resilience. Pers Individ Dif. 2023;200:111901. doi: 10.1016/j.paid.2022.111901.

17 Zarifsanaiey N, Farrokhi MR, Karimian Z, Hoseini S, Chahartangi F, Shahraki HR. Lesson learned from assessing teachers' and students' perspectives regarding the quality of e-learning in medical education during the pandemic: a mixed-methods study. BMC Med Educ. 2024;24(1):171. doi: 10.1186/s12909-024-05160-4. PubMed PMID: 38388898; PubMed Central PMCID: PMC10885478.

18 Leguizamo F, Núñez A, Gervilla E, Olmedilla A, Garcia-Mas A. Exploring attributional and coping strategies in competitive injured athletes: a qualitative approach. Front Psychol. 2023;14:1287951. doi: 10.3389/fpsyg.2023.1287951. PubMed PMID: 37965668; PubMed Central PMCID: PMC10641461.

19 Leis O, Sharpe BT, Pelikan V, Fritsch J, Nicholls AR, Poulus D. Stressors and coping strategies in esports: a systematic review. Int Rev Sport Exerc Psychol. 2024;1-31. doi: 10.1080/1750984X.2024.2386528.

20 Nuetzel B. Coping strategies for handling stress and providing mental health in elite athletes: a systematic review. Front Sports Act Living. 2023;5:1265783. doi: 10.3389/fspor.2023.1265783. PubMed PMID: 38033656; PubMed Central PMCID: MCPMC10687549.

21 Radochonski M, Cynarski W, Perenc L, Siorek-Maślanka L. Competitive Anxiety and Coping Strategies in Young Martial Arts and Track and Field Athletes. J Hum Kinet. 2011;27. doi: 10.2478/v10078-011-0014-0.

22 Omar-fauzee MS, Parnabas V, Nazarudin M, Abd.-Latif R, Nazarudin M, Jeok SK, Sutresna N. Overcoming The Competition Stress Through Coping Strategy. Imperial Journal of Interdisciplinary Research (IJIR). 2016;2(7).

23 De R, Castillo R, Alencar M, Balbinotti A, Zanetti M, Wiethaeuper D, Nazareth VL. Coping strategies in a competitive

situation: A comparative study, using an elite wheelchair fencing group. Revista Saúde e Desenvolvimento Humano. 2014;2(2):7-23.

24 Charoenpornsook V, Thumvichit A. Unveiling engineering students' challenges and coping strategies in English-medium instruction: a Q methodology study. Asian-Pacific Journal of Second and Foreign Language Education. 2025;10(1):3. doi: 10.1186/s40862-024-00307-8.

25 Piepiora P, Kaźmierczak E, Witkowski K. Personality of male and female practicing competitive football. Archives of Budo Science of Martial Arts and Extreme Sports. 2020;16:127-35.

26 Sanjari S, Soleimani MM. Validation of the Persian Version of the Engagement in E-Learning Scale in Students of the School of Nursing and Midwifery in Iran. Middle East J Rehabil Health Stud. 2023;10(3):e134881. doi: 10.5812/mejrh-134881.

27 Opoku OG, Adamu A, Daniel O. Relation between students' personality traits and their preferred teaching methods: Students at the university of Ghana and the Huzhou Normal University. Heliyon. 2023;9(1):e13011. doi: 10.1016/j.heliyon.2023.e13011. PubMed PMID: 36820185; PubMed Central PMCID: MCPMC9938481.

28 Karimian Z, Farokhi M. Eight Steps in the Development of Virtual Education in Educational Innovation Plan in Medical Sciences Universities, A review of an experience. Journal of Medicine and Cultivation. 2018;27(2):101-12. Available from: http://www.tebvatazkiye.ir/article_69001_en.html. [Persian]

29 Salvador A. Coping with competitive situations in humans. Neurosci Biobehav Rev. 2005;29(1):195-205. doi: 10.1016/j.neubiorev.2004.07.004. PubMed PMID: 15652266.

30 S.Nsajadi, KhanMohamadi S, Eskandari S, Heidary A, Darbani H. The Relationship Between Coping Strategies, Goal Setting and Competitive Anxiety With

Athletic Performance of The Students in Single and Group Teams. Procedia Soc Behav Sci. 2011;15:384-5. doi: 10.1016/j.sbspro.2011.03.107.

31 Schoeman R, Kotzee WF. Relationship between personality traits and academic performance on a Master of Business Administration programme. 2022;53(1):1-9. doi: 10.4102/sajbm.v53i1.2745.

32 Park S. Does the relationship between competitiveness and student achievement vary based on the culture of competitiveness? Evidence from PISA 2018. International Journal of Educational Research. 2024;127:102438. doi: 10.1016/j.ijer.2024.102438.

33 Wang H, Liu Y, Wang Z, Wang T. The influences of the Big Five personality traits on academic achievements: Chain mediating effect based on major identity and self-efficacy. Front Psychol. 2023;14:1065554. doi: 10.3389/fpsyg.2023.1065554. PubMed PMID: 36777199; PubMed Central PMCID: PMC9911834.

34 Kemarat S, Theanthong A, Yeemin W, Suwankan S. Personality characteristics and competitive anxiety in individual and team athletes. PLoS One. 2022;17(1):e0262486. doi: 10.1371/journal.pone.0262486. PubMed PMID: 35030214; PubMed Central PMCID: PMC8759674.

35 Hejazi Moughari E. The Relationships Between Personality Traits and Students' Academic Achievement. Procedia Soc Behav Sci. 2011;29:836-45. doi:10.1016/j.sbspro.2011.11.312.

36 Piepiora PA, Čaplová P, Zimoń P, Gumienna R. On research into the relationship between personality traits and the sporting level of competitive, professional and elite athletes. Front Psychol. 2024;15:1428107. doi: 10.3389/fpsyg.2024.1428107. PubMed PMID: 39323578; PubMed Central PMCID: PMC11422211.

37 Aliakbari Borovati F, Mohammadi Ahmadabadi N, Sanjari S, Keikha A, Bameri A, Panahi G, Mohamadi Soliemani

M. Development and Validation of the Academic Self-Handicapping Scale for Nursing and Midwifery Students: A Study of Reliability and Agreement. Interdiscip J Virtual Learn Med Sci. 2025;16(1):8-23. doi: 10.30476/ijvlms.2025.105011.1324.

38 Mokhtari LB, Tavan A, Sanjari S, Soliemani MRM, Salajegheh A. The Impact of Peer Relationships, Moral Development, and Family Relationships on Collective Violence with the Mediating Role of Psychological Security. Middle East J Rehab Health Stud. 2025;12(1):e151732. doi:10.5812/mejrh-151732.

39 Stanisławski K. The Coping Circumplex Model: An Integrative Model of the Structure of Coping With Stress. Front Psychol. 2019;10:694. doi: 10.3389/fpsyg.2019.00694. PubMed PMID: 31040802; PubMed Central PMCID: MCPMC6476932.

40 Monazah HS, Mohammadi Soleimani MR, Jahan F. Development of a coping skills educational package and its effectiveness on awareness, attitude, and behavior regarding group conflicts among male adolescents. Journal of Fundamentals of Mental Health. 2024;26(6). doi: 10.22038/jfmh.2024.79244.3122.

41 Sanjari S, Fakhraei AA, Soleimani MRM, Alidousti K. Validation of the Slade Fear of Childbirth Scale for Pregnancy in a Sample of Iranian Women: A Cross-sectional Study. Crescent Journal of Medical & Biological Sciences. 2022;9(3). doi: 10.34172/cjmb.2022.24.

42 Lee K, Ashton MC, Novitsky C. Academic Majors and HEXACO Personality. J Career Assess. 2022;30(2):345-66. doi: 10.1177/10690727211044765.

43 Palaahng H, Neshatdoost H, Moolavi H. Standardization of Revised HEXACO Personality Inventory (HEXACO-PI-R) in Iranian Students. Journal of Modern Psychological Researches. 2010;4(16):49-62. [In Persian]

44 Baghcheghi N, Koohestani Hr. Designing and psychometric properties of coping strategies scale for family caregivers of

hemodialysis patients. Acta Facultatis Medicae Naissensis. 2021;38:257-69. doi: 10.5937/afmnai38-29501.

45 Heydari R, Taghvaei D, Ahmadi A, Jahangiri M. Psychometric Validation of the Psychological Competitiveness Scale: A Study on Iranian University Students in Online Education. Interdiscip J Virtual Learn Med Sci. 2024;15(3):273-88. doi: 10.30476/ijvlms.2024.101591.1288.

46 Sanjari S, Soleimani MRM, Keramat A. Development and Validation of an Electronic Scale for Sexual Violence Experiences in Iranian Women. Crescent Journal of Medical & Biological Sciences. 2023;10(1). doi:10.34172/cjmb.2023.05.

47 Sanjari S, Kamali A, Amirfakhraei A, Mohammadi Soleimani MR, Afshar EK. Construction and validation of a self-report violence scale in Iranian women. Journal of fundamentals of mental health. 2021;23(3).

48 Monazah HS, Soliemani MRM, Jahan F. Investigating the Factor Structure and Validation of the Multidimensional Scale of Acceptance of Collective Violence Among Teenagers: An Exploratory and Confirmatory Factor Analysis. IJ Psychiatry and Behavioral Sciences. 2024;18(2). doi: 10.5812/ijpbs-137999.

49 Torabi B, Amirfakhrae A, Rezaei Gazaki P, Mohammadi Soleimani MR. Investigation of factor structure and validation of Ryff's Psychological Well-Being Scale in working children in the corona crisis: A descriptive study. Journal of Rafsanjan University of Medical Sciences. 2022;21(2):149-64. doi: 10.52547/jrums.21.2.149.

50 Barani H, Mohammadi Soleimani MR, Amirfakhraei A, Wahab Samavi SA. Transcultural adaptation and psychometric evaluation of the online learning self-efficacy scale among high school seniors in Bandar Abbas City. Interdiscip J Virtual Learn Med Sci. 2024;15(1):62-75. doi: 10.30476/ijvlms.2023.100230.1258.

51 Vostal F. Acceleration in the Academic Life-World. Acceleration in the Academic Life-World. Czech: The Czech Academy

of Sciences; 2016. p. 115-41.

52 Yeganeh H, Parvaresh H, Dehghani M, Soltani M. Construction and Standardization of Performance Evaluation test of Health, Safety and Environment Management Systems of Industrial Sector Contractors. Journal of Healthcare Management. 2021;12(3):73-86. Available from: https://www.sid.ir/paper/1013184/en. [In Persian]

53 Jami Pour M, Taheri F. Personality traits and knowledge sharing behavior in social media: mediating role of trust and subjective well-being. On the Horizon. 2019;27:98-117. doi: 10.1108/OTH-03-2019-0012.

54 Sanjari S, Mohammadi Soleimani M, Khanjani N, Mohseni M, Ahmadi Tabatabaei S. The relationship between demographic factors, healthy family and social health with exclusive breastfeeding in women referred to Kashani hospital of Jiroft in 2014. Journal of Rafsanjan University of Medical Sciences. 2016;15(2):165-78.

55 Reniers RL, Corcoran R, Drake R, Shryane NM, Völlm BA. The QCAE: a Questionnaire of Cognitive and Affective Empathy. J Pers Assess. 2011;93(1):84-95. doi: 10.1080/00223891.2010.528484.

PubMed PMID: 21184334.

56 Mohamadi Soliemani MR, Sanjari S, Dortaj F, Delavar A, Shokry H. A Model for Ranking the Quality of Educational Services in Medical Sciences Universities. Iranian Journal of Medical Education. 2017;17:132-44. [In Persian]

57 Ali HN, Shahrzad S, Reza MSM, Katayoun A. Assessing Stress, Anxiety, and Depression in Women with Menstrual Disorders Caused by COVID-19 Vaccines. J Med Public Health. 2023;4(1):1058.

58 Sadraei FS, Ebrahimi Z, Xodabande I. Perfectionism, emotion regulation, and teacher retention: An Examination of Iranian Early Career Language Teachers' Well-being. Heliyon. 2024;10(16):e36444. doi: 10.1016/j.heliyon.2024.e36444.

59 Padyab M, Ghazinour M, Richter J. Factor Structure of the Farsi Version of the Ways of Coping Questionnaire. J Appl Soc Psychol. 2012;42. doi: 10.1111/j.1559-1816.2012.00928.x.

60 Liao C-H, Wu J-Y. Learning analytics on video-viewing engagement in a flipped statistics course: Relating external video-viewing patterns to internal motivational dynamics and performance. Comput Educ. 2023;197:104754. doi: 10.1016/j.compedu.2023.104754.