

The Relationship between academic self-efficacy, academic procrastination and Academic vitality with Internet Addiction in high and low secondary school students

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Abstract

Introduction: Internet addiction is recognized as a psychosocial disorder and is included in the Diagnostic and Statistical Manual of Mental Disorders (DSM). The purpose of this research was to investigate the relationship between academic self-efficacy, academic procrastination and academic vitality with Internet addiction in high and low secondary school students.

Research method: The research method is of correlational type and the statistical population included all students of the second secondary level (government) of District 5 of Tehran in the academic year 1400-1401, of which there were 220 people (110 girls and 110 boys) by sampling method in were selected and answered the questionnaires of academic self-efficacy, academic procrastination, academic vitality and internet addiction.

Findings: The results of correlation and regression analysis showed that among the components of academic self-efficacy, aptitude, effort and texture have a significant relationship ($p \leq 0.01$) with internet addiction in students with 99% confidence. Among the components of academic procrastination, preparing for exams with $\beta = 0.396$, preparing for assignments and preparing for the end of the semester with 99% confidence have a significant relationship ($p \leq 0.01$) with Internet addiction in students. Also, there was a relationship between academic vitality and Internet addiction in students ($r = 0.178$), which is statistically significant with 99% confidence ($p \geq 0.01$).

Conclusion: As a result, Internet addiction is effective on academic vitality, academic procrastination and academic self-efficacy, and it also affects the academic performance of students.

Keywords: academic performance, academic self-efficacy, academic procrastination, academic vitality, Internet addiction

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Introduction:

In the last fifty years, the most important development in human life has been the development of the use of the Internet. Internet addiction is recognized as a psychosocial disorder and is included in the Diagnostic and Statistical Manual of Mental Disorders (DSM) (1). Internet addiction includes various forms of addiction to social media, virtual chat, online shopping, addiction to online games, and excessive downloading of videos, photos, or programs (2). The habit of excessive use of the Internet or Internet addiction is one of the things that affects teenagers and young people more than any other age group and since people at this age may have other educational problems, it will become one of the important problems in their lack of progress(3).

Addiction to social networks is one of the consequences that many users of social networks may experience (4); Therefore, the widespread use of social networks is a new form of soft addiction (5). There are different theories about internet and social network addiction. According to the theory of social control, since addiction is different in terms of age, sex, economic status and nationality, certain types of addiction are found in certain groups of society more than other groups (6). Behavioral explanation theory believes that a person uses social networks for rewards such as escape from reality and entertainment. According to the theory of biomedical explanation, the presence of certain chromosomes or hormones or the absence of certain chemicals that regulate brain activity are effective in addiction. It is believed that addiction to social networks is more common in people with anxiety, stress, depression and low self-esteem (7). Griffiths (8) suggests that addictive behavior is behavior that has certain characteristics such as salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse. Addictive behavior refers to repetitive habits that increase the risk of disease or social problems in a person. In the last decade, addictive behaviors such as excessive use of the Internet or social networks have become a part of students' daily lives.

Students are one of the most important users of the virtual world and social networks. Excessive use of social networks has positive and negative academic, social and health consequences for students (9). Reducing academic performance is one of the most important consequences of excessive use of social networks for students. Research results showed a significant positive relationship between internet addiction and mental disorders in students (10). Kumar and colleagues concluded that Internet addiction has a negative effect on the mental health and academic performance of students. (11) According to this study, students with high levels of internet addiction have low mental health. Also, studies have shown that poor academic performance is one of the most common adverse consequences of Internet addiction among students worldwide(12).

The term academic performance refers to the level of a person's school learning as measured by various academic tests such as arithmetic, dictation, history, geography and the like (13). In other words, performance can be considered as a set of behaviors that a person shows in relation to performing his duties, which is shown in two dimensions of academic progress and academic regression in the field of information acquisition(14). In another definition, academic performance

is the student's achievement of educational goals, which are usually in the cognitive field and in a specific subject..

Determining the amount of students' learning during an academic semester and an academic year, which is measured by a test at the end of the educational period. On the other hand, students need abilities to deal with academic problems and challenges, among these abilities is academic vitality, which depends on how they react. It refers to the challenges, failures, problems and pressures they face in academic environments(15).

Academic vitality is defined as the capacity to overcome challenges that are part of everyday academic life. Academic vitality is an ability and skill that makes people adapt to deal with tensions and problems in the field of education and includes the challenges that happen in daily life. Psychological vitality is the process of positive adaptation to bitter experiences in life (16). In general, emotional vitality is full of positive energy and liveliness, the control of which is within the individual and enables him to find the purpose and cause of the meaning of his academic life(17). This structure is considered as a structure that reflects academic flexibility; Therefore, academic vitality is one of the important components of academic life that all students must have (18). When students do homework spontaneously, it does not make them tired and disappointed, but they feel that they have more energy and strength, so this construct is considered as a significant indicator of mental health and inner sense of vitality in school(19). By maintaining psychological balance in many situations, this structure leads to the improvement of students' social adaptation and mental health, it also strengthens the feeling of empathy and expands their social relationship with others; Therefore, their functional abilities and social communication will be improved and they will be able to overcome difficulties and troubles and manage their academic life. Academic vitality is a positive, constructive and adaptive response to all kinds of common and everyday challenges and obstacles in the educational environment, and as one of the key constructs of positive psychology, it is one of the important indicators of successful and fruitful learning(20). On the other hand, one of the most important factors that we can consider in adolescent students in connection with Internet addiction is academic self-efficacy. Academic self-efficacy as an important aspect of self-efficacy means the student's belief about understanding or doing assignments and achieving goals in a certain academic field, and it raises his confidence in his ability in the field of academic tasks. The research of Sharifi and Saeedi (21) examined the relationship between social adaptation and self-efficacy with Internet addiction among students and showed that there is a significant relationship between self-efficacy and Internet addiction in students; Self-efficacy is defined as a belief that a person has in his ability to perform a specific method or method to achieve certain goals. Academic self-efficacy specifically refers to confidence in doing academic tasks such as reading text, asking questions in class and preparing for exams (22). Also, another variable affected by Internet addiction in adolescent students is academic procrastination. Procrastination is defined as postponing and delaying the completion of homework and tasks related to education, and it is a behavioral habit in which a person procrastinates and delays in completing assignments or doing them unnecessarily without a logical

reason. In this context, Odaki (23) found that there is a relationship between Internet addiction and academic procrastination in students. Procrastination is defined as postponing the necessary work without a reason, which has definitely been decided to be done, and despite being aware of the unpleasant consequences of this postponement, the person postpones the start or completion of the work and unconsciously follows this procedure. It continues until it becomes a habit or behavioral trait.

Several studies have been conducted in the field of Internet addiction among students; Suarez-Perdomo, Ruiz-Alfonso and Garce-Delgado (24) investigated the relationship between addiction to virtual networks and procrastination and academic performance in students. The statistical population of this research was 1784 students from 24 universities in Spain. Examining the results of the research showed that addiction to social networks is related to procrastination and academic performance. Berti and colleagues. (25) investigated the relationship between Internet addiction and perceived self-efficacy in students and showed that there is a negative and significant relationship between perceived self-efficacy and Internet addiction. In Iran, Arab Zozni and Shirafken Kopken (26) A study investigated the relationship between academic procrastination and cell phone addiction and the mediating role of academic self-efficacy in students. The research results show that there is a significant relationship between academic procrastination and cell phone addiction and the mediating role of academic self-efficacy in male students.

Iran is one of the Internet that has been remarkable in recent years. The results of a meta-analysis showed that information on the Internet in Iran is average (27). According to the results of another meta-analysis, 2.1% of Iranian students were at risk of Internet addiction and 5.3% of them were addicted to the Internet. Behavioral dependence on the Internet just because it causes mental damage, it also causes academic, family, psychological and financial damage, and this behavioral dependence on the Internet is more common among teenagers. Therefore, they cannot use the Internet among today's youth and teenagers, but these tools can be used correctly and instead of academic progress, improving people's performance in different areas of life and speeding up their education. But it is for the purpose of planning research in any society that is most related to the use of the Internet in the studies of students, especially with regard to the academic performance that can be identified. Therefore, since the research in our country on the relationship between the mentioned variables and especially the comparison of students with high and low academic performance has been very limited and insufficient, considering this research gap, the main question is whether academic self-efficacy, academic procrastination and academic vitality Is there a relationship with Internet addiction in secondary school students with high and low academic performance? The result of this research is important and practical for an organization such as education and its planners and advisors in order to identify and strengthen students' education and prevent injuries caused by internet addiction in them.

Research method:

In terms of the purpose of the research, this research is in the category of applied research, and in terms of the descriptive method, it is of correlational type. The statistical population of this research is all students of the second secondary level (government) of district 5 of Tehran city in

the academic year of 1400-1401, and their number is about 530. 220 people (110 girls and 110 boys) were selected from 2 girls' schools and 2 boys' schools in Region 5 using available sampling method for ease of work and based on the GPA of all students. They were divided into high performance (average above 17) and low performance (average below 17) and answered the questionnaires in person. **Research tool:**

A) Academic self-efficacy questionnaire: This scale has 30 questions and three subscales of aptitude, effort, and texture, which were presented by Jinks and Morgan. The items are graded on a 4-point Likert scale from completely agree = 4 to completely disagree = 1, and questions 4, 5, 15, 16, 19, 22, 20, 23 are scored inversely, and the internal consistency of this scale is determined by its creators with the alpha method. Cronbach's alpha coefficient was reported as 0.78, 0.66, and 0.70 for the three subscales, respectively, and in Iran, in Jamali et al.'s research (1392), the overall Cronbach's alpha coefficient was 0.76, and for the subscales, it was 0.79 and 0.62. 0 and 0.59 were obtained. The reliability of this tool by Cronbach's alpha method in the present study was 0.70.

b) Academic procrastination questionnaire: This questionnaire was made by Solomon and Roth Bloom in 2008 and they called it the academic procrastination scale. This scale was used by Dehghani for the first time in Iran. This scale has 27 items that examine 3 components: the first component, preparing for exams; It contains 8 questions. The second component is preparing for assignments and includes 11 items, and the third component is preparing for the end of the semester, which includes 8 items. Dovalit (1391) also obtained the reliability coefficient of the questionnaire using Cronbach's alpha method of 0.91 in a research. In this research, a version of 27 questions was used. The reliability of this tool by Cronbach's alpha method in the current research was 0.90.

c) Academic Vitality Questionnaire: This scale was designed by Martin and Marsh, which has 9 questions and answers are calculated on a 5-point Likert scale from one (strongly disagree) to five (strongly agree). For the preliminary implementation and elimination of defects, these items were implemented on a group of high school students of Mehriz city and were rewritten and finally 9 items reached the final stage. A high score in this test indicates greater academic vitality, the minimum score in this questionnaire is 9 and the maximum score is 45. This scale is stable in terms of internal consistency and retest (Cronbach's alpha 0.80 and retest 0.67). The results of the internal consistency analysis showed that the Cronach's alpha coefficient obtained by removing one item was equal to 0.80 and the retest coefficient was equal to 0.73. The reliability of this tool according to Cronbach's alpha method in the present study was 0.71.

d) Internet Addiction Questionnaire: This questionnaire was presented by Kimberly Young and has 20 questions based on the Comprehensive Statistical Manual of Mental Disorders for pathological Internet use and is rated on a 5-point Likert scale from never to rarely. The sum of the scores shows the level of internet addiction in each person and the reliability of this tool is reported using Cronbach's alpha coefficient of 0.90. The reliability of this tool by Cronbach's alpha method in the present study was 0.86.

Finally, in order to analyze the data in the descriptive part, mean, standard deviation, skewness and elongation, age, cross-section were presented. In the inferential part, multivariate regression analysis and Pearson correlation were used to answer the research hypotheses. All analyzes were performed using SPSS version 26 statistical software.

Findings:

According to the results, among the 220 respondents, 81 (36.8%) 16-year-olds, 75 (34.1%) 17-year-olds, and 64 (29.1%) 18-year-olds made up the total number of respondents had given.

Description of research variables:

In Table (1), the descriptive indicators of "mean, standard deviation, skewness and kurtosis" of the research variables are reported.

Table 1: Descriptive indices of research variables

group	component	Average	standard deviation	Skewness	elongation
Low performance	Talent	32.7	5.1	0.215	-1.2
	Effort	32.9	4.3	0.225	-0.836
	Texture	11.3	2.1	-0.200	-1.3
	Preparing for exams	21.6	4.6	0.083	-1.2
	Preparing for assignments	20.6	4.8	-0.052	-1.0
	Preparing for term papers	23.5	4.2	-0.322	-0.598
	Academic vitality	21.4	4.9	0.195	-1.2
	Addiction to Internet	55.6	8.3	0.207	-0.730
high performance	Talent	35.5	4.7	-0.096	-1.4
	Effort	35.1	5.2	-0.329	-1.2
	Texture	10.4	1.9	0.179	-1.2
	Preparing for exams	23.9	4.2	-0.038	-1.2
	Preparing for assignments	23.1	4.3	0.172	-1.1
	Preparing for term papers	21.5	5.0	0.271	-1.1
	Academic vitality	24.1	4.8	0.011	-0.802
	Addiction to Internet	51.7	8.1	0.542	-0.513

As can be seen from the data in Table 1, the respondents in the low performance group had a higher average mean in the components of context, preparing for term papers and internet addiction and the people of the high performance group also had a higher average in the variables of talent, effort, preparation for exams, preparation for homework and academic vitality.

Mahalanobis distance was used to check multivariate outliers. This statistic measures the multivariate distance between each individual and the group's multivariate mean, each item evaluated using the chi-squared distribution with an exact alpha level of 0.001. Cases that reach this threshold can be considered as multivariate outliers.

Table 2- related to the marginal values of the Mahalanobis distance of the research components

	procrastination	Efficacy
Most	14.42	12.11
	7.75	11.34
	7.75	11.30
	6.80	7.08
	6.62	6.11
	0.047	0.019
	0.047	0.019
least	0.128	0.076
	0.159	0.094
	0.191	0.132

The critical value of chi-square with 3 degrees of freedom (the number of components of academic self-efficacy) at the level of 0.001 is equal to 14.86, and the critical value of chi-square with 3 degrees of freedom (the number of components of academic procrastination) is equal to 14/86 at the level of 0.001. As can be seen from the results of table (2), none of the values exceeded this limit and the observed values are less than the critical value; Therefore, the assumption of non-existence of multivariate outlier data in academic procrastination has been met.

In order to check the hypotheses of the research, after checking the assumptions of the regression analysis using inferential statistics indicators, a suitable answer was found for it. As shown in Table 1, all research components had a normal distribution. Multivariate outlier values were also checked in Table 2 and the results indicated that there is no multivariate outlier among the research components; Therefore, the necessary conditions for performing multivariate regression and correlation were provided.

Table 3- Regression model summary

Watson camera	standard error	R modified	R ²	R
1.884	6.2	0.466	0.473	0.688

According to table (3) related to the summary of the regression model, it can be concluded that the combined academic self-efficacy components predict 47.3% of the changes in internet addiction in students. The assumption of independence of errors was also checked using Durbin-Watson's statistic. The results of the table showed that the value of this statistic is reported as 1.884. The statistic value of this test is in the range of 0 to 4; Therefore, it can be concluded that there is no correlation between the errors of the model and the errors are independent of each other. To check the significance of the regression model, the statistical method of analysis of variance was used.

Table 4- Standardized and unstandardized regression coefficients

Variable	B (Not standardized)	standard error	β	meaningful	Tolerance	VIF
talent	-0.447	0.083	-0.270	0.001	0.977	1.02
effort	-0.830	0.085	-0.482	0.001	0.996	1.0
Texture	-1.7	0.202	-0.426	0.001	0.973	1.0

As the results of Table 4 related to the regression coefficients show, aptitude with $\beta=(-0.270)$, diligence ($\beta=-0.482$) and texture ($\beta=-0.426$) with 99% confidence have a significant relationship ($p \leq 0/01$) with internet addiction in students. The hypothesis of multiple collinearity was also checked in the rows related to (VIF) and (Tolerance) and as a result, no multiple linear correlation was found between the independent variables (Tolerance values of 0.01 or less and VIF values greater than 10 indicate multiple collinearity).

Table 5- Regression model summary

R	R ²	R modified	standard error	Watson camera
0.671	0.40	0.442	6.3	1.202

According to Table 5 related to the summary of the regression model, it can be concluded that the components of academic procrastination together predict 45% of the changes in Internet addiction in students. The assumption of independence of errors was also checked using Durbin-Watson's statistic. The results of the table showed that the value of this statistic is reported as 1.202. The statistic value of this test is in the range of 0 to 4; Therefore, it can be concluded that there is no correlation between the errors of the model and the errors are independent of each other. To check the significance of the regression model, the statistical method of analysis of variance was used.

Table 6- Analysis of variance to check the significance of the regression model

Model	sum of squares	Degrees of freedom	mean square	Amounts F	Significance level
regression	7067.07	3	2355.68	58.860	0.001
left over	8644.7	216	40.022		
Total	15711.77	219			

Table 6 shows the results of variance analysis to check the significance of the regression model. The results confirm the significance of the whole model with 99% confidence ($p \leq 0.01$) with $F_{(3, 216)}=58.860$. After reviewing the summary of the regression model and the significance of the

model, the standardized and unstandardized regression coefficients of the model variables are examined.

Table 7 - Standardized and unstandardized regression coefficients

Variable	B (Not standardized)	standard error	β	meaningful	Tolerance	VIF
Preparing for exams	0.732	0.094	0.396	0.001	0.977	1.02
Preparing for assignments	0.428	0.090	0.241	0.001	0.996	1.0
Preparing for term papers	0.853	0.078	0.480	0.001	0.973	1.0

As the results of Table 7 related to the regression coefficients show, preparing for exams with ($\beta=0.396$), preparing for assignments ($\beta=0.241$) and preparing for final term papers ($\beta=0.480$) with 99% certainty has a significant relationship ($p \leq 0.01$) with Internet addiction in students. The hypothesis of multiple collinearity was also checked in the rows related to (VIF) and (Tolerance) and as a result, no multiple linear correlation was found between the independent variables (Tolerance values of 0.01 or less and VIF values greater than 10 indicate multiple collinearity). The third hypothesis: Academic vitality is related to Internet addiction in students with high and low academic performance in the second secondary level.

Table 8- Correlation test between academic vitality and Internet addiction

Relationships between variables		Number	The correlation	meaningful
addition to Internet	academic life	220	-0.178	0.001

$(p \leq 0.05)^*$ و $(p \leq 0.01)^{**}$

As the results of Table 8 related to the correlation between academic vitality and Internet addiction in students ($r=-0.178$) there was a relationship, which is statistically significant with 99% confidence ($p \leq 0.01$).

Discussion and Conclusion:

The purpose of this study was to investigate the relationship between academic self-efficacy, academic procrastination and academic vitality with Internet addiction in high and low secondary school students. The results of the research showed that among the components of academic self-efficacy, talent, effort, and texture have a significant relationship with Internet addiction in students, and this level of relationship is more in the effort component than in other components. According to Bandura's social-cognitive theory, self-efficacy beliefs influence the choices people make and the courses of action they follow. People have a tendency to engage in and deal with tasks in which they feel capable and confident and avoid tasks for which they do not feel capable and capable. Self-efficacy beliefs help determine how much time people spend on an activity, how long they persevere in the face of obstacles, and how flexible they are in the face of conflicting situations. Therefore, the feeling of high self-efficacy causes more effort, resistance, and

flexibility, and for this reason, the component of effort and then texture and talent have had a negative and inverse relationship in facing Internet addiction and with the increase in internet addiction and the amount of excessive and extreme use of the internet, the motivation, effort and sense of academic self-efficacy among students will decrease. The results of the researches of Sharifi and Saeedi (21) and Berti et al. (25) have pointed to the negative and significant relationship between Internet addiction and academic self-efficacy in support of the results of this hypothesis, these results confirm our explanation of the relationship between self-efficacy components and Internet addiction.

Also, based on the findings of the research, among the components of academic procrastination, preparing for exams, preparing for assignments and preparing for the end of the semester have a significant relationship with Internet addiction in students, which is more in the component of preparing for the end of the semester than other components. Procrastination is the postponement of the necessary work without a reason to the future, which is definitely decided to be done and despite being aware of the unpleasant consequences of this procrastination, the person postpones the start or completion of the work and unconsciously continues this procedure until it becomes a habit or behavioral trait. A procrastinator blames himself for having a habit of procrastinating and not doing the work on time or at all, or he may use various reasons to justify this ugly habit and defend himself, which in this case helps to repeat it again. A person who has an addictive use of the Internet, due to his strong dependence on this type of use and the large amount of time he spends on it, after a while, he feels unmotivated in all activities, especially assigned tasks, and postpones them to another time and this postponement of tasks and tasks will lead to the formation of procrastination. First, the person postpones the less important and small tasks to another time, and little by little preparing for the end of the semester, daily assignments and exams will be postponed, which is also effective in their academic performance.

The research results of Arab Zozni and Shirafken Kopken (26), Roshanzadeh et al. (28), Suarez-Perdomo et al. (24) have presented results consistent with this research hypothesis regarding the relationship between academic procrastination and Internet addiction among students and inconsistent results were not found. According to the theory of cognitive explanation, addiction to social networks is caused by faulty cognition and people tend to use social networks to escape from internal and external problems. In general, social network addiction is classified as a type of cyber-relationship addiction. Addiction to social networks refers to mental concern about using social networks and allocating time to these networks in such a way that it affects other social activities of people such as job and professional activities, interpersonal relationships and health and leads to disorder (Azizi, Soroush and Khatouni, 1398). Therefore, the most important effect that can be caused by internet addiction in the school and learning age is the reduction of motivation, reduction of academic compatibility and vitality, and as a result, lower sense of self-esteem, more academic problems, and reduction of performance and progress. For this reason, there has been a negative and inverse relationship between academic vitality and Internet addiction. The results of few studies have investigated the relationship between these two variables but for example, the results of the research of Garavand and Sabzian (1401) were inconsistent with

the results of this research and did not show a relationship between these two variables, which could be due to the difference in the statistical population and the age of the respondents, which was conducted on the students of Lorestan.

Practical suggestions: It is suggested based on the research findings from the first hypothesis, since the level of academic self-efficacy is related to internet addiction, therefore, training related to self-efficacy and student evaluation should be used in order to improve academic performance, as well as group addiction training. internet and having counseling sessions to reduce internet addiction to improve academic status. It is also suggested that based on the findings of the second hypothesis, in educational spaces, schools and universities should benefit from individual and group training on the effects of Internet addiction on the procrastination of learners in order to raise awareness and improve the process of using virtual space.

Ethical Considerations: After the necessary approvals and obtaining permission from the university, in order to complete the questionnaires, the goals and working methods were explained to all the people participating in the study, and their consent was obtained and they were assured that the results of the research will be available to them if they wish. They will be placed. Also, people were assured that they were free to participate or not participate in the research. People were assured that they can decide to withdraw from the research at any stage of the research and this will not have any negative consequences for them.

Limitations of the research: This research, like other researches, had limitations, and one of these limitations was the mental and emotional state of the participants when answering the questions, which may affect the accuracy and accuracy of their answers, and this limitation was uncontrollable.

Conflict of interest: The authors hereby declare that this work is the result of an independent research and does not have any conflict of interest with other organizations and individuals.

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