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The Relationship between Personality and computer Self-Efficacy with Computer Anxiety

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ABSTRACT

The main purpose of this study was to evaluate the personality and self-efficacy of a computer with computer anxiety. The present research community included all undergraduate law students in Tehran who studied in public and Azad universities in the 2014-2015 academic year. The sample included 200 male and female students who were selected by stratified random sampling. Revised Neo Personality Inventory, Bandalus Benson Computer Anxiety questionnaire, Murphy Computer Self-Efficacy questionnaire, and Kover and Owen questionnaire were used to collecting data.
The present study was a correlational and data analysis study performed by Pearson correlation coefficient and multivariate regression analysis. The results showed that there is a significant relationship between personality (being conscientious and open to experience and agreement) with computer anxiety at the level of p <0.05. There is also a significant relationship between neuroticism, conscience, agreement, openness to experience and computer self-efficacy at the level of p <0.05. The results also showed that there is a significant relationship between computer anxiety and computer self-efficacy. But no significant relationship was observed between extraversion and computer self-efficacy. Ultimately, computer self-efficacy and being conscientious, open to experience, and agreement reduce computer anxiety.

Keywords: *Character, computer self-efficacy, computer anxiety*

INTRODUCTION

It is difficult to even imagine completing a job or a task without using a computer (Simsek[1], 2011).
Computers and e-learning have emerged as a new paradigm for higher education and have been a constant source of support for the past few years. Its stakeholders at various levels include researchers, physicians and various institutions, etc., and the perception of its importance even for our current problems and economic instability is strengthening and empowering, and its presence is widespread in all areas of life (Saade and Kira[2], 2007).
In the meantime, the widespread presence of computers in the field of education is undeniable and is increasingly used in teaching-learning processes in all subjects and levels and bases in schools and higher education centers (Arani[3], Doyle and Stumly Quoted from Simsek, 2011).
Teaching technology in the classroom is very important in preparing students for senior classes as well as professional careers, especially in areas such as technology (Downey and Kher[4], 2015).

Anxiety is a natural and inevitable reaction to perceived danger or risk (Mathew[5], 2012, Quoted from Achim[6] and Kassim, 2014).

Computer anxiety is defined as the fear of computer interaction and the actual threat posed by the computer, which includes feelings of danger and fear of failure (Hassanzadeh and colleagues, 2009).

Computer anxiety is a serious barrier to how to learn to use a computer effectively (Simsek, 2011).

Computer anxiety affects other behaviors and features of information or technology, and many people have a negative view of the computer (Todman[7], 2000 Quoted from Askari and Marashian, 2012).

1- Simsek
2- Saade and Kira
3-Arani, Doyle and Stumly
4- Downy and Kher
5- Mathew
6- Achim and Kassim
7- Todman

Self-efficacy refers to an individual's evaluations of performance capabilities on a particular task, that is, whether or not people are capable of succeeding in that task (Bandura[1], 1977, 1982a, 1982b).

Past research has shown that although computer users have realized the benefits and ease of using a computer, they still have concerns and anxieties about using a computer. A number of self-efficacy studies have reported the computer as a mediator or facilitator for ease of use of the computer (Saade and Kira, 2007).

One of the key points in the field of computer technology is the process of computer self-efficacy, which has a wide stream of empirical research in this field, and many of these studies answer the question that self-efficacy really changes during training and how the change is related to the individual's background, and ultimately the individual's performance grows during the training (Downey and Kher[4], 2015).

According to studies, computer self-efficacy and computer anxiety are the determining factors in understanding the ease of use of the educational management system (Saade and Kira, 2007). As the computer experience increases, the computer anxiety decreases, which only facilitates indirect performance by increasing levels of self-efficacy, which in turn improves computer performance (Saade and Kira, 2009).

Due to the fact that personality is composed of traits and tendencies that lead to individual differences in behavior, stability in behavior over time, and the continuation of behavior in different situations, the patterns of these traits are different in each individual. So, everyone has a unique personality, even though they are similar in some ways (Feist and Feist[2], 2002).

A study by Vella[3] and Caputi and Java Suriva (2003), Examined the role of personality in deciding and determining the events of the variables of computer anxiety and self-efficacy, which affected the performance of tasks. In this study, preliminary results have been obtained on the model of computer dynamics events related to fixed individual differences, individual traits, preparations and tendencies, which require more extensive research on the effect of these dynamic structures, computer anxiety, and computer self-efficacy examine different individual profiles.

1- Bandura
2- Feist and Feist
3- Vella and Caputi and Java Suriva

Costa and McCray[1] (1992), In their proposed theoretical model, say that in addition to believing in a biological basis, the five main factors (the behavioral differences in the five factors are related to factors such as genes and brain structure), Throughout life, these factors affect various structures such as self-concept, self-efficacy beliefs, and adaptability-related characteristics such as personal attitudes and goals, and influence individual decisions (Hassanzadeh and Najafi, 2010).

Asgari and Marashian(2009), in a study entitled "The relationship between personality traits and computer anxiety with Internet addiction," by studying 300 students of Ahvaz Azad University, showed that there is a significant relationship between personality traits such as neuroticism,

extraversion, conscientiousness, agreement and openness to experience and Internet addiction, as well as a relationship between computer anxiety and Internet addiction.

Downey and Kher (2015), in a study entitled "Longitudinal study of the effects of the growth of computer self-efficacy on performance during technology education" by studying 230 students in a major university in South America, showed that the correlation between computer anxiety and computer self-efficacy decreases with the duration of training.

From an industrial perspective, knowledge about the interaction between computer anxiety and computer self-efficacy should create the necessary understanding and interest in communication technology. We should provide a space to create different levels of efficacy in students to maximize help. Provide applied education and research that reduces anxiety and increases learning (Saadeh and Kyra, 2009). Therefore, the main issue in the present study is whether there is a relationship between personality and computer self-efficacy with students' computer anxiety.

From an industrial perspective, knowledge should also establish the necessary connection and interest in the interaction between computer anxiety and computer self-efficacy and understanding of the use of technology, and we need to provide a space to create different levels of efficiency in students to maximize support for education and applied research that reduces anxiety and increases learning (Saade and Kira 2009).

Therefore, the main issue in the present study is whether there is a relationship between computer personality and self-efficacy with computer anxiety in students?

Method

The design of the present study is a correlational design. This research studies the relationship between computer personality and self-efficacy with students' computer anxiety.

The statistical population in this study was all undergraduate law students who were studying in public and Azad universities in Tehran in the 2014-2015 academic year.

According to statistics, in the 2014-2015 academic year, a total of 4700 undergraduate law students were studying in these universities; this number formed the statistical population of this study.

1- Costa and McCray

According to the statistical method of the study, which is regression, in regression groups, the sample size should be 20-25 times the prediction variables (Hooman, 2007); therefore, in this study, the sample size should be at least 150 people, so the sample size was selected including 200 and 100 male students, taking into account the drop in some questionnaires. In this study, the sample was selected by stratified random sampling method between law students of Tehran University and the Azad University of Tehran.

The sampling method was as follows: In the first part, two universities were randomly selected among the universities of Tehran. In the second part, from each university, 100 law students were randomly selected. Finally, 200 students participated in this study.

Research tools

Computer Anxiety Scale: The Bandalos and Benson[1] (1990) scales were used to measure computer anxiety.
This scale consists of 20 items based on the Likert scale with six options from strongly disagree to strongly agree with them designed by Bandalos and Benson.
The minimum and maximum scores of the questionnaire are considered to be 20 and 012, respectively. The whole scale was calculated based on Cronbach's alpha test statistic of 0.96 with 375 subjects (Bandalos and Benson, 1990). Cronbach's alpha for the Computer Anxiety Inventory was 0.81, indicating good reliability of the tool.
In the present study, in order to calculate the validity of the computer anxiety questionnaire, Cronbach's alpha coefficient was calculated to assess the internal consistency of the anxiety questionnaire questions. The obtained Cronbach's alpha coefficient is 0.91, which indicates the very good validity of the computer anxiety questionnaire questions.
The computer self-efficacy scale: To measure computer self-efficacy, Murphy[2], Coover and Owen computer self-efficacy scale was used, which was designed and validated by Murphy, Coover and Owen. This scale has 32 questions or items that are based on the Likert scale and five options (from very low self-esteem to very high self-esteem). The minimum and maximum scores of the questionnaire are between 32 and 160 hours.

1- Bandalos and Benson
2- Murphy and Coover and Owen

Harrison and Rainer[1] (1992) reported an overall confidence interval of 0.95. In the present study, in order to calculate the validity of the computer self-efficacy questionnaire, Cronbach's alpha coefficient was calculated to examine the internal consistency of the computer self-efficacy questionnaire.
The Cronbach's alpha coefficient is 0.985, which indicates the acceptable and meaningful validity of the computer self-efficacy questionnaire questions.
Neo Short Form Personality Scale: A five personality factor or neo questionnaire was used to measure five personality factors. This test was developed and revised by Costa and McCray in three stages (1985, 1989, 1992).
The NEO-FFI consists of 60 sentences designed to briefly and quickly assess the five factors of neurotic personality, extroversion, openness to experience, agreement, and conscience. This test consists of five sets of 12 sentences related to each index (Haghshenas, 2009).
The Likert scale sampling method is five options from strongly disagree to strongly agree. Some questions are scored in reverse.
The questionnaire is used as a self-measure. Costa and McCray (1992) reported an alpha coefficient between 0.68 (for agreement) to 0.86 (for neuroticism). In the present study, calculating the validity of the Neo questionnaire, Cronbach's alpha coefficient calculated for each of the factors of neuroticism, extraversion, openness to experience, agreement, and conscientiousness are 0.859, 0.862, 0.858, 0.871 and 0.852 respectively، which are all acceptable and significant coefficients and values, which indicates the acceptable validity of the questionnaire questions.
In this study, Pearson correlation coefficient and stepwise multivariate regression were used to analyze the data and answer the hypotheses and research questions.

1- Harrison and Rainer

Results

The students participating in this study were 200 people (100 males and 100 females), which are shown in Table 1 as descriptive indicators related to the research variables.

Table 1 - Descriptive indexes of research variables

Variables	Average	Standard	(kssig)
Computer Anxiety	75.73	13/011	1/213
Computer self-efficacy	106/30	28/187	0/930
Neurosis	26/18	7/471	0/809
Extraversion	28/24	6/059	0/791
Openness to experience	22/75	4/484	0/781
Agreement	28/04	6/064	1/155
Consciousness	30/75	7/003	1/165

Based on the data in Table 1, the results of the Kolmogorov-Smirnov normality test showed that the distribution of students' scores in the research variables is close to the normal distribution. The average student personality was from 22/75 to 30/75.

The mean of openness to experience was lower, and the mean of conscientiousness was higher in students than in other cases.

Hypothesis 1: There is a relationship between personality (conscience, extraversion, openness to experience, neuroticism and agreement) with computer anxiety in students.

To test this hypothesis, the Pearson correlation coefficient between the scores of each of the personality subscales with computer anxiety was calculated, and the results are presented in Table 2.

Table 2 - Correlation coefficient results for personality with computer anxiety

Variables	Pearson correlation coefficient	Significance
Neuroticism-Computer Anxiety	0/900	0/206
Extraversion-Computer Anxiety	0/011	0/988
Openness to experience-Computer Anxiety	-0/205	0/004
Agreement-Computer Anxiety	-0/207	0/003
Conscience-Computer Anxiety	-0/219	0/002

n=200

The results of Table 2 show that the relationship between neuroticism and extraversion with computer anxiety was not significant ($p > 0.05$), But the relationship between conscientiousness, openness to experience and agreement with computer anxiety was negative and significant ($p < 0.05$).

This result indicates that the relationship between conscience, openness to experience, and agreement with computer anxiety was significant, but neuroticism and extraversion were not significantly related to computer anxiety.

Hypothesis 2: There is a relationship between personality (conscience, extraversion, openness to experience, neuroticism and agreement) and computer self-efficacy in students.

To test this hypothesis, the Pearson correlation coefficient between the scores of each of the personality subscales with computer efficacy was calculated, and the results are presented in Table 3.

Table 3 - Correlation coefficient results for personality with computer self-efficacy

Variables	Pearson correlation coefficient	Significance
Neuroticism-Computer Self-Efficacy	-0/229	0/001
Extraversion-Computer Self-Efficacy	0/024	0/738
Openness to experience-Computer Self-Efficacy	0/208	0/003
Agreement-Computer Self-Efficacy	0/169	0/017
Conscience-Computer Self-Efficacy	0/181	0/010

n=200

The results of Table 3 show that the relationship between neuroticism with computer self-efficacy was negative and significant ($p < 0.05$), The relationship between conscience and openness to experience computer self-efficacy was positive and significant ($p < 0.05$), But the relationship between extraversion with computer self-efficacy was not significant ($p > 0.05$).

This result indicates that the relationship between neuroticism, conscience, openness to experience and agreement with computer self-efficacy was significant, but extraversion was not significantly related to computer self-efficacy.

Hypothesis 3: There is a relationship between Computer Self-Efficacy and Computer Anxiety.

To test this hypothesis, the Pearson correlation coefficient between the scores of each of the computer self-efficacy with computer anxiety was calculated, and the results are presented in Table 4.

Table 4 - Correlation coefficient results for computer self-efficacy with computer anxiety

Variables	Pearson correlation coefficient	Significance
Computer self-efficacy-computer anxiety	-0/302	0/001

n=200

The results of Table 4 show that the relationship between computer self-efficacy with computer anxiety was negative and significant ($p < 0/05$, $r = -0/302$).

This result indicates that as computer self-efficacy increases, computer anxiety decreases.

Question - What is the role of computer personality and self-efficacy in predicting computer anxiety?

The stepwise multivariate regression analysis method was used to answer this question. The results are presented in Table 5.

Table 5 - The results of regression analysis to predict computer anxiety

Variables	B	Std.Error	Beta	t	pR2F
Constant	121/87	7/544		16/155	0/001
Computer self-efficacy	-0/12	0/032	-0/262	-3/752	0/001
Conscience	-0/25	0/125	-0/133	-1/976	0/050
Openness to experience	-0/43	0/194	-0/149	-2/234	0/027
Neuroticism	0/29	0/117	-0/168	-2/488	0/014
Agreement	-0/29	0/144	-0/137	-2/036	0/043

Among the factors of personality and self-efficacy, only extraversion, along with other variables, had no significant relationship with computer anxiety and did not enter the equation. According to the obtained R2 values, the multivariate correlation between other factors, personality and computer self-efficacy with computer anxiety in students was 0/182. In fact, the effect of computer self-efficacy, conscientiousness, openness to experience, neuroticism and agreement on computer anxiety is 18.2, while the effect of computer self-efficacy on computer anxiety in most students is 9.1 and agreement is 1.7%, the lowest It had an effect on computer anxiety and these correlation values were significant.

Since F is significant at the level of p <0.001, the relationship between computer personality and self-efficacy with computer anxiety is significant, the results in Table 5 show that computer self-efficacy, conscientiousness, openness to experience and agreement had a negative and significant effect on computer anxiety and reduced computer anxiety, but neurosis increased computer anxiety.

The regression equation for predicting computer anxiety in the study group using two variables of personality and computer self-efficacy are:

Computer Anxiety = (Agreement) -0/29 (neuroticism) + 0/29 (Openness to experience) -0/43 (conscientiousness) -0/25 (Computer self-efficacy) -0/12 + 121/87

Discussion

The findings of the present study showed that there was a significant negative relationship between conscience, openness to experience and agreement with computer anxiety in students. (p<0/05) In other words, by increasing the score of these factors (conscientiousness, Openness to experience and Agreement) in students, their computer anxiety decreases. But the relationship between neuroticism and extraversion with computer anxiety was not significant in students (p>0/05).

Bandura (1985) Students who believe in their worthiness can focus on problem-solving strategies, so these students have a tendency to engage in tasks and assignments. In this regard, it can be said that the higher the score of conscientiousness, openness to experience and agreement in students, the less fear and anxiety students have when working with computers and the easier it can be to work with computers.

Will Fong (2006) emphasized the variables of work and experience with the computer and the variables of personality and self-efficacy, and the beliefs and opinions of users as the determinants and influential variables of computer anxiety. The findings of the present study are in line with the research of Will Fong[1] (2006), Warren[2] (2011), and Vela (2003).

The results also showed that there is a significant positive relationship between personality (conscientiousness, openness to experience, neuroticism and agreement) and computer self-efficacy in students (p < 0/05).

The relationship between neurosis and computer self-efficacy is a negative one. In other words, the higher a person's neurosis, the lower the computer's self-efficacy. The neurotic person does not have coping or emotional stability and is prone to irrational beliefs, is less able to control his or her impulses, and copes with stress weaker than others (McCray and Costa, 1992).

Therefore, according to his beliefs in the ability to work, this person works with less confidence and is weaker in computer-based work (Compeau[3] and Higgins, 1995). Abstrap and Apollo (2011) consider self-efficacy to be the most important factor in linking personality and perception or perception of stress.

1-Wilfong
2-Warren
3- Compeau and Higgins

People with an open personality to experience have the characteristics of diversity, mental curiosity and independence in judgment (McCray and Costa, 1985). They tend to embrace new ideas and unconventional values and experience more and deeper positive and negative emotions than inflexible people(McCray, 1987).

These people are action-oriented (Fathi Ashtiani, 2010). People with agreement traits are adaptable (Fathi Ashtiani, 2010). People are conscientious, responsible, accurate, task-oriented and goal-oriented (McCray, 1987).

Computer self-efficacy is defined as a person's judgment of his or her ability to use a computer for specific computer tasks (Stephens and Shotick[1], 2002). Therefore, people with the

characteristics of being conscientious, open to experience, and agreeing to perform computer-related tasks can overcome their anxiety because they have a positive cognitive self-assessment. Thus, their ability to use computers as learning tools increases (Pheps and Eliss[2], 2002). Computer self-efficacy has a significant impact on decisions regarding the use and acceptance of the computer (Davis[3], 1989).

Gang (2004) argues that computer self-efficacy reflects users' assessments of their ability to use computers and affects people's perceptions of ease of use of technology and decision-making (Jafari Trojani, 2011). In this regard, it can be stated that the findings of the present study with the research (2013), Moradiani (2012), Ahmadi deh Qutbaldini (2009), Sobhani Nezhad (2009), Orang (2003), Abstrap and Apollo (2011), Saade and Kira (2009), Sam (2000), Will Fong and Hasan (2003), Rosen and Will (1995), Christopherson and Wheatherly[4] (1997) and Will Fong (2006) is aligned. The findings of this study are not in line with the findings of Jafari Trojani (2010) and Fararo (2008).

The results also showed that there is a negative and significant relationship between computer self-efficacy and computer anxiety in students. In other words, the more students' computer self-efficacy increases, the less computer anxiety they have.

1- Stephens and Shotick
2- Pheps and Eliss
3- Davis
4- Christopherson and Wheatherly

Reducing anxiety and increasing experience facilitates the performance of indirect tasks by increasing self-efficacy levels, which in turn improves performance (Bendura, 1986; Schuk[1], 2000). Will Fong (2006)'s research find that self-efficacy beliefs have the greatest significant association with computer anxiety and anger? Previous research has shown that high levels of computer anxiety reduce levels of self-efficacy, which in turn reduces computer-based performance. Similarly, computer experience improves performance and consequently increases levels of self-efficacy (McLerney and Sicnlair[2], 1994). In this regard, it can be stated that the findings of the present study with Moradiani findings (2012), Sobhani Nezhad (2008), Ahmadi deh Qutbaldini (2009), Saade and Kira (2009), Pauli and Gilson[3] (2007), Bharatacharjee[4] (2008), Schmit[5] (2007), Stamouli[6] (2005), Sam and Othman and Nordin[7](2005), Gaudron and Vignolib[8] (2002), Durandel and Hodge (2002), Rosen and Mesirs and Will (1996) is aligned.

Regarding the contribution of each of the personality traits and computer self-efficacy in predicting computer anxiety, the results showed that the best predictors are the priority of the effect of computer self-efficacy and conscience, openness to experience, neuroticism and final agreement, respectively, and the extraversion variable along with other variables had no significant relationship with computer anxiety.

The results of regression analysis show that this correlation is significant. And the relationship between personality traits and computer self-efficacy with computer anxiety is significant in students. This study also showed that computer self-efficacy, conscientiousness, openness to experience and agreement have a negative and significant effect on computer anxiety and reduce computer anxiety, but neuroticism increases computer anxiety. Changing the character in the virtual world, if it is an exaggeration, is a way to escape from the realities, and instead of reconstructing one's character in the real world, one only dreams in the virtual world and is psychologically emptied of a limited time.

Due to the special circumstances of the virtual world of the Internet, people undergo changes in their body and mind that affect their mood and the whole process of their life and personality, and the existence of multiple overlaps and relationships between variables becomes clear (Asgari, 2008).

1- Schuk
2- McLerney and Sicnlair
3- Pauli and Gilson
4- Bharatacharjee
5- Schmit
6- Stamouli
7- Sam and Othman and Nordin
8- Gaudron and Vignolib

In terms of individual factors, people who are psychologically introverted and have low communication skills and personality problems are usually more attracted to the Internet and computers and from the community point of view, these factors originate from the weak relations between the family and also indicate a series of psychological factors and social anomalies that cause these people to turn to computers and the Internet and use it extensively (Dargahi, 2003).

The main assumption of the trait view is that human beings are extensively prepared and respond to stimuli in a specific way (Parvin and John, 2005).

Costa and McCray (1992) stated that five personality factors throughout life affect various structures such as self-concept, self-efficacy beliefs, and adaptive traits such as personal attitudes and goals, and influence one's choices and decisions. In their proposed theoretical model for the five main factors, in addition to believing in a biological basis, Costa and McCray's behavioral differences related to the five personality factors are related to factors such as genes and brain structure (Javadi and Kadivar, 2002).

Therefore, it can be said that the findings of this study are in line with the previous findings of the research journal of Kharazmi University (2013), Warren (2011), Asgari and Marashian Research (2008) and Pretan Anand (2003) and Armstrong (2001).

Research Limitations

In the present study, due to the impossibility of controlling all the influential variables in the study, such as unexplained fatigue, long number of questions and impatience of the participants in answering the questionnaires, as well as the limited research background and considering that in conducting this research, the sample under study is limited to law students, so this has

reduced the possibility of generalization of the obtained results, so this is one of the limitations of this research.

Research proposals

Due to the limitations of the sample and the results of the present study, and various studies that confirm the effect of computer anxiety on computer personality and self-efficacy, if we do not deal with computer anxiety, I will become a permanent obstacle in teaching and teaching and learning; therefore, it is suggested that research be conducted on similar topics in society, social and occupational groups, educational, service and economic organizations, and social classes, with samples of different ages in urban and rural areas, also other personality variables should also be used in future research.

Due to the fact that in the present study, a significant relationship has been found between personality and computer self-efficacy, so wider and wider results can be obtained by using other personality variables. In later research, individual differences in anxiety and beliefs can be emphasized. Also, considering that computer anxiety has a significant relationship with computer self-efficacy, it is suggested that organizations and agencies pay due attention to the formation of computer training workshops at the community level, also, equipping schools and universities with computer facilities and including serious and basic education of computer courses in schools and universities can help increase self-efficacy and reduce anxiety, It can also be helpful to set up training workshops to overcome anxiety and stress at the university and school level. On the other hand, according to the obtained results, the relationship between personality and computer self-efficacy was significant. It is recommended to implement and consider it in the e-learning stages for students.

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