

## Prediction of Computer Self-Efficacy According to Personality Characteristics and Meta Cognitive Strategies among Teacher Educators

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**Background:** Computer self-efficacy is a specific type of self-efficacy and it's defined as a judgment of one's capability to use a computer. Recent reports show that individuals having high perception of computer self-efficacy resist to technological developments less and adapt to technological developments more quickly.

**Objectives:** The aim of this study was to predicting Computer self-efficacy of Student-teachers according to Personality characteristics and Meta cognitive strategies

**Material and Methods:** This descriptive-correlational study was carried out in 2015 and comprised 280 teacher educators of Shahid Rajae Teacher Training university. Sampling was done through randomized stratified sampling method. the data was obtained using 3 questionnaire: Murphy computer self-efficacy questionnaire, Neo personality characteristics inventory (NEO-FF-I) and O'Neil and Abedi state meta cognition.

**Results:** The findings showed that 5 percent of computer self-efficacy predicted by personality characteristics and meta cognitive strategies. Neuroticism and Agreeableness had negative relation with computer self-efficacy. 2/5 percent of computer self-efficacy predicted by Neuroticism and Agreeableness. 3 percent of computer self-efficacy predicted by openness and it had positive relation with computer self-efficacy. 2/5 percent of computer self-efficacy predicted by cognitive strategy and it had positive relation with computer self-efficacy.

**Conclusions:** It is necessary that in few sessions meta cognitive strategies teach to student-teachers at university. and one of the criteria in recruited teachers can be from their personality.

**Keywords:** Computer Self- efficacy, Personality Characteristics, Meta cognitive strategies

### 1. Background

Today, there have been huge developments in technology(1) and it changes with a Fast speed and influence different part of our life like education. computers are one of important technology. Using computers has a lot of advantage in education. Using computers in classrooms have also effects on student's effective learning to become their learning easier (13). so with consider of the importance of computers in education; its momentous that teachers who transform information to students knows computers and other technology, and dominant on how to work with them. According to chen, looi and chen(2009), the teachers and their central role in the integration of technology in the classroom are the most important elements (9). with regards to the importance of computers; one of the concepts that has been discussed in this domain is self-efficacy. according to Bandura (1995),self-efficacy is the belief in one 's capabilities to organize and successfully perform the activities required to show one's performance (8). Compeau and Higgins

defined computer self-efficacy as a judgment of one's capability to use a computer (7) and it influence on choosing activity, amount of effort (2). Individuals having high perception of computer self-efficacy resist to technological developments less and adapt to technological developments more quickly than the individuals having low perception of computer self-efficacy(8). regards to the importance of computer self-efficacy knowing the factors that impress on individuals computer self-efficacy is important. in this study the relation of two variable with computer self-efficacy have been studied: personality Characteristic and metacognitive strategies.

Personality is relatively stable, enduring and important aspect of self. Personality attributes are stable in that the same person is likely to have similar attributes over time, and they are enduring in that the same person will have the similar attributes in different social contexts (3). Personality is important factor. it determines our

attitudes and behaviors . it is certain that qualification of students are closely related to qualification of teachers. Personality traits of teachers also affect both their own professional qualifications and students(6).

Another concept is metacognitive strategies. Haretman (2001) stated that metacognition makes teachers aware and controls over how they think about teaching and self-regulate teaching activities personality traits ,as measured by the big five factors of personality, contribute to explain computer self-efficacy. taking gender into account, results show that the traits of neuroticism, extraversion and agreeableness are significantly relate to computer self-efficacy for women but not for men. Torkzadeh, chang and Demirhan resulted that training significantly improved computer and internet self-efficacy. Respondants with favorable attitudes toward computers improved their self-efficacy significantly more than respondents with unfavorable attitudes. Djigic, Stojilkovic and Dskovic (2014) resulted that Among personality dimensions , the most predictors of teacher's self-efficacy were Conscientiousness and Openness. Nasrollahian and shabani and Ahmadi Gatab (2013) resulted that there's a significant difference between the self-efficacy of the orphan girl students who took the learning cognitive and metacognitive strategies and those who didn't take the course.

## 2.Objectives

The purpose of this study was prediction of Computer self-efficacy of Student-teachers according to Personality characteristics and Metacognitive strategies.

and percentages. multi regression (inter regression and stepwise regression) were also used to examine prediction of computer self-efficacy according to personality characteristics and metacognitive strategy.

## 4. Results

Table 1presents finding related to socia-demographic characteristic. It revealed that most of the student-teachers studied at Human field (239 person) and the least in mathematics(20 person).

with respect to students,goals and situation. Teachers need to monitor and regulate their cognitive activity. Thus, teachers need to think metacognitively to effectively run teaching and use instructional techniques strategically ( 5).

researches that have been done in relation to these concepts are: saleem,Beaudry and Croteau(2011) resulted that four of the five stable

## 3.Material and Methods

This descriptive-correlational study was conducted in 2015. The study was carried out in Shahid Rajae Teacher Training University and student- teachers were recruited by stratified random sampling . The sample size consisted of 280 student-teachers (195 female and 85 male). 3 questionnaire were used in this research. Murphy computer self–efficacy (1989) consisted 32 questions. reliability of this questionnaire in this study was 0/97. O' Neil and Abedi state metacognition questionnaire (1996) was consist of 20 questions and 4 subscales: planning, monitoring, cognitive strategy and Awareness. reliability of this questionnaire has been assessed: monitoring 0/60 , planning 0/72, cognitive strategy 0/67 , Awareness 0/57 and metacognition 0/88. Neo personality characteristics Inventory consisted of 60 questions. this questionnaire measure five basic personality dimensions: Neuroticism, Extraversion, Openness, Agreeableness and conscientiousness. Validity of these five characteristics in this study: Neuroticism 0/70, Extraversion 0/44, Openness 0/27, Agreeableness 0/69, conscientiousness 0/79. Descriptive statistics were used to describe variables and included frequencies

student-teachers age were between 20 to 60. and most of them were between 41-50 (161 person) and the Least were between 20-30(16 person) years. Table 2 presents finding related to prediction of computer self-efficacy according to personality characteristics and metacognitive strategies, which revealed that 5 percent of computer self-efficacy predicted by Neuroticism, agreeableness, and Openness. Neuroticism and agreeableness had negative relationship with computer self-efficacy and openness had positive relation with computer self-efficacy.

The stepwise regression was used to find better prediction between personality characteristics and computer self-efficacy. result show that 3 percent of computer self-efficacy predict by openness (Table3). The stepwise regression was used for

prediction of computer self-efficacy according to metacognitive strategy. Finding show that 2/5 percent of computer self-efficacy predict by cognitive strategy.

**Table1.** Demographic characteristics of studied Population

Demographic characteristics	Frequency
<b>Gender</b>	
Male	85(30/4)
Female	195(69/6)
<b>Field of study</b>	
math	20
English	21
Human Science	239
<b>age</b>	
<b>20-30</b>	16(5/7)
<b>31-40</b>	88(31/4)
<b>41-50</b>	161(75/5)
<b>51-60</b>	15(5/3)

**Table 2.** Inter regression of personality characteristics and metacognitive strategies with computer self-efficacy

variable	R	R <sup>2</sup>	adjusted R <sup>2</sup>	F	sig	B	t	sig
awareness						0/364	0/295	0/768
cognitive						1/673	1/096	0/274
planning	0/278	0/077	0/047	2/519	0/009	0/378	0/263	0/793
monitoring						-0/110	-0/082	0/935
neurotic						-0/652	-2/160	0/032
Extra						0/117	0/276	0/783
openness						1/016	2/609	0/010
agreeable						-0/868	-2/189	0/029
conscien						0/157	0/467	0/641

**Table 3.** stepwise regression of personality Characteristics with computer self-efficacy

variable	R	R <sup>2</sup>	adjusted R <sup>2</sup>	F	B	Seb	t	sig
openness	0/179	0/032	0/029	9/208	1/165	0/384	3/034	0/003

**Table4.** stepwise regression of metacognitive strategy with computer self-efficacy

variable	R	R <sup>2</sup>	adjusted R <sup>2</sup>	F	B	Seb	t	Sig
Cognitive strategy	0/170	0/029	0/025	8/233	2/442	0/851	2/869	0/004

## 5. Discussion

In this study Neuroticism and Agreeableness have negative relation with computer self-efficacy. the negative relation between neuroticism and computer self-efficacy might be, because neuroticism has facets such as anxiety, angry hostility, depression, impulsiveness and vulnerability (12). and when a person is anxiety, this mood influence on his/her works. so it disturbed his/her function. hence, anxiety can impress on person confidence toward computers and it leads to reduction of computer self-efficacy. This finding (neuroticism) is consisted with saleem and el(2011). they resulted that neuroticism has negative relation with computer self-efficacy of women.

This study showed that Openness has positive relationship with computer self-efficacy. one of the reasons that individuals with high computer self-efficacy are more willing to use computers and accept changes in computers and other technologies, is because of openness characteristic. Openness is described by imagination, intelligence and curiosity (12). Regards to the fast and wide changes occur in Technologies domain, people who like to be in a invariable situations, don't have enough desire to participate in this field. so people who are openness, because of their curiosity and positive attitude about learning new things and experience new conditions, accept changes in technologies. so they participate in different activities like computers and their characteristic influence on their computer self-efficacy. this finding was in agreement with, Daskovic et al(2013) and Tatalovic (2012). Daskovic et al, results showed that conscientiousness and openness are the most powerful predictors of teacher's self-efficacy.

This study shows that cognitive strategies predict computer self-efficacy and has positive relation with it. Enhancing the use of cognitive strategies, lead to increasing computer self-efficacy. Cognitive strategies are some mental process or procedures used for accomplishing a particular cognitive goal (14). so the cause of positive relation between cognitive strategy and computer self-efficacy is because of when a person use this strategy to accomplish a work, it affects person work and lead to a better function and then person computer self-efficacy increase. This finding is consisted with Nasrollahian et al(2013).their result show that there is a significant difference between the self-efficacy of the orphan girl students who took the learning cognitive and metacognitive strategies and who didn't take the course.

## Authors 'Contributions

Dr. Farideh Hamidi and Mahin Shirzad Aski designed the research. All authors contributed in data gathering, data analysis and preparing manuscript.

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