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## The Relationship between Personality Traits and Critical Thinking among Female Administrative Officers in Four Districts and Department of Education in Shiraz.

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### ABSTRACT

Critical thinking increases the likelihood of achieving an optimal efficiency. On the other hand, personality traits consist of extroversion, responsibility (conscientiousness), happiness (agreeableness), neurosis (neuroticism) and flexibility. The present study aimed to find a relationship between personality traits and critical thinking. This was a descriptive study conducted on female administrative officers in four districts and Department of Education in Shiraz. The statistical population consisted of 136 female employees among which 136 individuals were selected using cluster sampling method. Five-factor Personality Inventory (NEO) and Critical Thinking Disposition Questionnaire (Ricketts) were used to collect the required data. For data analysis, descriptive statistics of mean and standard deviation as well as inferential statistics of Pearson correlation coefficient and multiple regression analysis were used with simultaneous entry of data with SPSS. Neuroticism had an inverse and significant correlation with critical thinking ( $r=-0.231$ ). Other personality traits had a direct and significant correlation with critical thinking. Meanwhile, responsibility had the highest positive correlation (0.478) and the greatest direct and significant relationship ( $P = 0.0001$ ) with critical thinking. The results showed that neurotic individuals are anxious, aggressive, depressed, avoid thinking and do need desire to solve problems and criticize on various issues. Thereby, an inverse relationship was found between neuroticism and critical thinking. However, the other personality traits (responsibility, flexibility, agreeableness and extroversion) had significant relationships as well as direct and positive correlation with critical thinking.

**Keywords:** critical thinking, personality traits, responsibility, employee, flexibility

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## INTRODUCTION

Critical thinking increases the likelihood of achieving an optimal efficiency using cognitive skills or strategies [1]. In fact, McCrae and Costa five-factor personality traits commonly used in various studies are as follows [2,3]. Extroversion (happiness) covers characteristics of warmth (friendliness and affectionate), group-oriented, decisiveness, assertiveness, activity, seeking excitement and positive emotions [3]. Agreeableness encompasses attributes of trust, candor, altruism, cooperation, humility and a tendency to be compassionate [3]. Conscientiousness (will and desire to succeed) covers characteristics of efficiency, discipline, conscientiousness and, disciplined and cautious in decision-making and endeavor to be successful. Neuroticism (emotional stability) encompasses attributes of anxiety, aggression, depression, avoidance, hastiness and vulnerability. Flexibility (wisdom) covers attributes of imagination, desiring beauty, feelings, actions, beliefs and values [3].

These are called NEO Five-Factor Model, which is not only widely used in examining traits of ordinary people but also in organizational psychology, psychiatry, career counseling, education, assessment of academic achievement orientation and clinical psychology [4]. In previous studies relevant to importance of personality traits, a positive relationship was found between flexibility and critical thinking skills [5-7]. A study was conducted on Chinese students in which personality factors were related to critical thinking more than cognitive factors [8]. Sultan Gharay conducted a study in 2012 and showed a relationship between extroversion, flexibility, conscientiousness, agreeableness, neuroticism and critical thinking [9]. In another study, it was shown that critical thinking attitude had a significant and positive correlation with four personality traits of extraversion, flexibility, conscientiousness and agreeableness [3]. Deyoung *et al.* (2005) showed that highly flexible and curious individuals desire to get involved with new ideas. Such people show significant cognitive flexibility and think divergently [10].

## MATERIALS AND METHODS

This was a descriptive study. The statistical population consisted of female administrative officers in four districts and Department of Education in Shiraz in 2013. There were 253 female administrative officers according to General Department of Statistics in 2013. Cluster sampling was used in this study.

Demographic variables included age, place of employment and position in Shiraz.

Two questionnaires were used in this study.

The short form NEO Personality Inventory (NEO-FFI) consisting of six questions were used in this study

### NEO Revised Personality Inventory (NEOPI-R)

The personality test was developed based on factor analysis. It is the newest tool in the field of personality introduced by McCrae and Costa in 1985 as the NEO Personality Inventory. The inventory examines five personality factors of neuroticism, extraversion, flexibility, agreeableness, and conscientiousness (responsibility). In the short form, each factor is measured with 12 questions (10).

This questionnaire consists of 60 questions, which measures five personality traits of neuroticism, extroversion, flexibility, agreeableness and responsibility.

The questions are scored based on a five-point Likert Scale ranging from strongly disagreed (0), disagreed (1), no idea (2) agreed (3) and strongly agreed (4). Some questions are scored inversely. The key to questions are as follows.

**Table 1: scoring the questionnaire.**

Subscale	Item number (negative items are scored inversely)
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Neuroticism	-1	6	11	-16	21	26	-31	36	41	-46	51	56
Extroversion	2	7	-12	17	22	-27	32	37	-42	47	52	-57
Agreeableness	-3	-8	13	-18	-23	28	-33	-38	43	-48	53	58
Flexibility	4	-9	-14	19	-24	-29	34	-39	-44	49	-54	-59
Responsibility	5	10	-15	20	25	-30	35	40	-45	50	-55	60

The participants were asked to specify his status according to the given item on a Likert Scale ranging from totally agreed to totally disagreed [2, 3, 11].

It is expected that all questions be answered. If any question was left blank, the participant was asked to fill in the blanks. The participant can use “no idea” option in case that he cannot decide what to respond to the question or do not comprehend what the question is. If more than 40 questions were left blank, the questionnaire would not be examined. If less than 41 questions were left blank, the blank questions would be responded as no idea [2, 12].

For validity and reliability of the questionnaire, alpha coefficient reported by Costa and McCrae ranged from 0.74 to 0.89 with an average of 0.81 [4].

A study was conducted on 208 people with three months interval in which the reliability coefficients were obtained as 0.83 for neuroticism, as 0.75 for extroversion, as 0.80 for flexibility, as 0.79 for agreeableness, as 0.79 for conscientiousness. NEO-PI long-term reliability was also assessed. The Cronbach's alpha of the questionnaire was obtained as 0.62 [2].

### **Critical Thinking Disposition Inventory (CTDI)**

This questionnaire was introduced by Ricketts in 2003 as a self-report tool, which measures critical thinking disposition. Critical thinking raises the likelihood of achieving an optimal efficiency using cognitive strategies or skills. The scale consisted of 33 items and three subscales: innovativeness (11 items), maturity (9 items) and engagement (13 items). The participants should specify either their agreement or disagreement based on a 5-point Likert Scale (from strongly agreed= 1 to strongly disagreed = 5). The inventory contains 33 questions [13, 14].

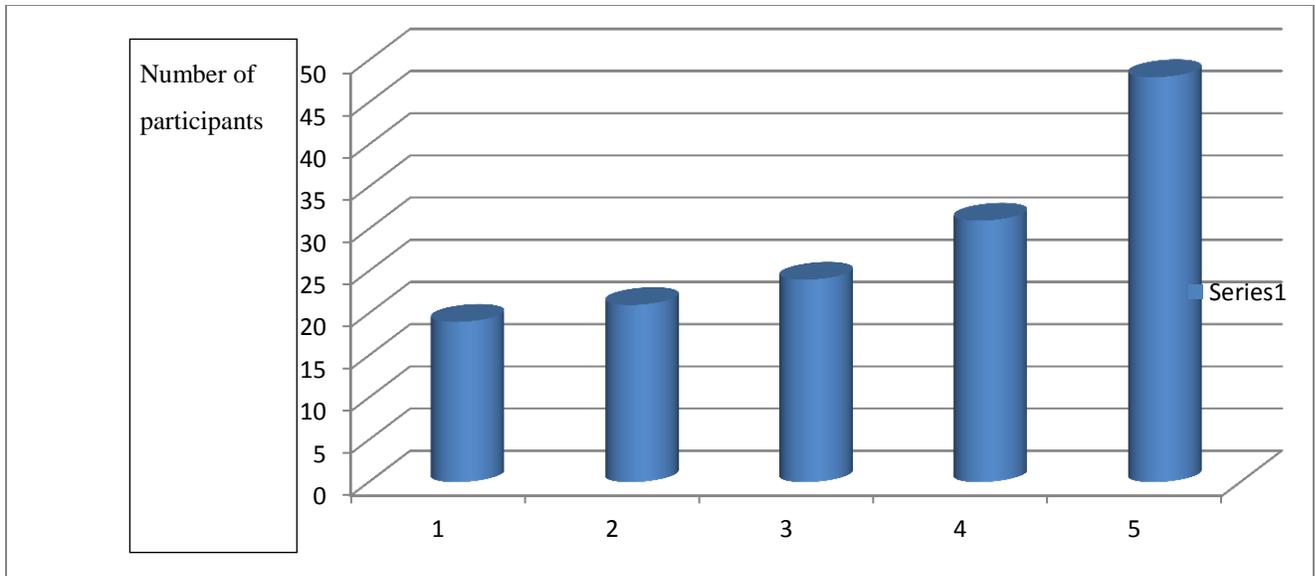
The items in Critical Thinking Disposition Inventory are scored as follows: strongly disagreed = 1; disagreed = 2; no idea = 3; agreed = 4; strongly agreed = 5.

Ricketts conducted another study on 60 students majoring in agriculture for the second year in order to standardize critical thinking disposition inventory. Reliability coefficients of the subscales were reported as follows: innovativeness as 0.75, maturity as 0.57 and engagement as 0.86. Cronbach's alpha coefficient of the questionnaire was obtained as 0.95. A number of academics approved face validity of the scale [4, 13].

After data collection, descriptive statistics of mean and standard deviation as well as inferential statistics of Pearson correlation coefficient were used for analysis of the relationship between personality traits and critical thinking. Data analysis was performed using SPSS. The significance level was considered as 0.05 in all the above tests. The information on questionnaire of each participant was completely kept confidential.

### **Findings**

It should be noted that 136 female administrative officers in departments of education participated in this study among which the largest number of participants (48 people) were employed in Department of Education and the minimum number of participants (19 individuals) were employed in the first district. Frequency of the participants is given in Figure 1.



**Figure1: Number of participants in different districts**

Table 2 shows that neuroticism has the highest mean while agreeableness has the lowest mean among the five personality traits.

**Table 2: Mean and standard deviation of personality traits and its components**

Variables	Number	Mean	Standard deviation
Neuroticism	136	62.58	5.86
Extroversion	136	28.92	4.73
Agreeableness	136	23.02	3.38
Flexibility	136	33.33	5.31
Responsibility	136	36.97	6.34

Table 3 shows mean and standard deviation of critical thinking disposition and its components.

**Table 3: mean and standard deviation of critical thinking disposition and its components**

Variables	Mean	Standard deviation
Innovativeness	42.09	8.74
Maturity	27.63	6.02
Engagement	49.19	11.05

The table shows that engagement has the highest mean and maturity had the lowest mean among components of critical thinking disposition.

In table 4, Pearson correlation coefficient was used to examine the relationship between personality traits and critical thinking disposition.

**Table 4: Correlation coefficient between personality traits and its components with critical thinking disposition**

Personality traits and its components	Correlation coefficient with critical	Significance level
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	thinking disposition	
Neuroticism	-0.231	0.007
Extroversion	0.375	0.0001
Agreeableness	0.167	0.050
Flexibility	0.454	0.0001
Responsibility	0.478	0.0001

According to table 4, neuroticism has an inverse and significant relationship with critical thinking disposition. However, other personality traits had a direct and significant relationship with critical thinking disposition. It should be noted that responsibility had the highest positive correlation (0.478) as well as a direct and significant relationship ( $P=0.0001$ ) with critical thinking disposition. On the other hand, neuroticism had the highest negative correlation (-0.231) with critical thinking disposition.

### DISCUSSION AND CONCLUSION

There was a significant relationship between personality traits and critical thinking disposition. The findings showed that responsibility had the highest direct correlation while neuroticism had the highest inverse correlation with critical thinking. In other words, extraversion, flexibility, responsibility (conscientiousness), agreeableness had positive and significant relationships with critical thinking while neuroticism had a negative correlation and an inverse relationship with critical thinking.

In study showed that critical thinking disposition had positive and significant relationships with four personality traits of extroversion, conscientiousness (responsibility), agreeableness and flexibility in 2002[3].

In another study examined the relationship of cognitive and learning styles and big five personality traits with critical thinking disposition among students of Tabriz University in 2011. The results showed relationship of extroversion, flexibility, responsibility, agreeableness and neuroticism with critical thinking is significant [9].

Chamorro-Premuzic et al. examined the relationship of five personality traits with divergent thinking. They showed that introspection greatly enhanced creative thinking compared to extroversion in 2008 [15]. To explain these findings, it can be stated that introverted people tend to solve the problems that greatly require reflection and insight [16].

Clifford et al. (2004) investigated the relationship of big five personality traits with critical thinking attitudes. They showed a positive and significant relationship between flexibility and critical thinking [17].

In another study, it was shown that extroversion is negatively correlated with critical thinking skills. These results are not consistent with those obtained in this study.

According to results of this study and previous studies, neurotic individuals are anxious, aggressive, depressed, self-restraint, hasty and vulnerable. Thereby, neurotic individuals do not desire to think and solve problems and criticize and analyze various issues with self-confidence. They are not also curious people. In fact, an individual cannot be anxious and vulnerable and simultaneously self-confident. He cannot focus his attention on one certain subject. The results also confirmed this issue. Extrovert individuals are assertive, active, seek excitement and desire to experience various issues. Agreeable individuals are decent, cooperative, trustworthy, responsible, willful, successful, disciplined, ambitious, competent and energetic. They desire and endeavor to be successful, are disciplined and prudent in decision-making. Flexible individuals are initiative, originator, brave and independent, commit to their actions and emotions and desire beauty. They approve both theoretically and empirically critical thinking. As cited earlier, responsible or conscientious individuals are efficient, disciplined, loyal, successful and diligent. They cautiously make decisions. They greatly desire to think critically. As a result, they make appropriate decisions and think reasonably. The results showed that critical thinking can be predicted with flexibility, responsibility, agreeableness and extroversion. Responsibility can significantly and positively predict critical thinking.

## REFERENCES

- [1] Halpern DF. Thought and knowledge. Lawrence Erlbaum Associates Publications, 1996.
- [2] Costa PT, MacCrae RR. Revised NEO personality inventory (NEO PI-R) and NEO five-factor inventory (NEO FFI): Professional manual. Psychological Assessment Resources Publications, 1992.
- [3] Grossi Farshi, M.t. New approaches to personality assessment. Jameh Pajoo Publications, 2001.
- [4] Yavari Barhaghtalab E. Islamic Azad University of Marvdasht Branch Publications, 2013.
- [5] Harris JA. J Personality and Individual Differences. 2004;36(4):913-929.
- [6] Halonen JS. J Teaching of psychology. 1995;22(1):75-81.
- [7] Badri Gargari R. MA thesis. Faculty of Educational Sciences in psychology Al-Zahra University Publications, 2011.
- [8] Ku KY, Ho IT. J Personality and Individual Differences. 2010;48(1):54-8.
- [9] Sultan Qara'ii Kh, Alaei P. Master Thesis. University of Tabriz Publications, 2011.
- [10] DeYoung CG, Peterson JB, Higgins DM. J personality. 2005;73(4):825-58.
- [11] Costa PT, McCrae RR. Manual, form S and form R. Psychological Assessment Resources Publications, 1985.
- [12] Dstorany M, Pouryusef, S. Relationship between personality and mental health and job satisfaction of employees. Tarbiat Modarres University in Tehran Publications, 2012.
- [13] Ricketts JC. The efficacy of leadership development, critical thinking dispositions, and student academic performance on the critical thinking skills of selected youth leaders. University of Florida Publications, 2003.
- [14] ROBERTS II TG. The influence of student characteristics on achievement and attitudes when an illustrated web lecture is used in an online learning environment. University of Florida Publications, 2003.
- [15] Chamorro-Premuzic T, Reichenbacher L. J Research in Personality. 2008;42(4):1095-1101.
- [16] Matthews, G. Extraversion . State and trait . London, Academic Press Publications, 1992: 95-126.
- [17] Clifford JS, Boufal MM, Kurtz JE. J Assessment. 2004;11(2):169-76.