

The Five-Factor Model of Personality and its Relationship to Cognitive Style (Rush and Prudence) and Academic Achievement among a Sample of Students

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Abstract

The present study aims to identify the relationship between the five-factor model of personality and its relationship to cognitive style (rush and prudence) and academic achievement among a sample of students. The study is based on descriptive approach for studying the relationship between the variables of the study, results and analysis. The study sample consisted of (310) students at Najran University, the research instruments include the five major factors of personality (prepared by the researchers), scale of cognitive rush and prudence (prepared by the researchers). Data will be statistically processed using SPSS through calculating means, standard deviations, coefficient correlations, "T values", multiple regression and analysis of variance. The study resulted that there is a correlation coefficient between the five major personality factors, cognitive style (rush/prudence) and academic achievement. The results also showed that there are statistically significant differences for the level of the five major personality factors between the impulsive and the prudent, and the level of academic achievement between male and female students.

Keywords: five-factor model of personality, rush, prudence, academic achievement, Najran University

1. Introduction

The term of "Personality" is considered the most meaningful term that carry a lot of meanings with several psychological concepts, which is one of the most difficult terms to be understood because, as (Abdel-Qawi, Rania, 2010) shows, "personality" represents the personal traits of the individual and the patterns of behavior, through which one can identify the individuals' adaptation to the surrounding environment and predict their responses in various situations. Although there are numerous and successive attempts to study "personality", the psychologists are still different in their views about the identifying dimensions of personality and the number of factors that can describe and identify personality. Reviewing the literature, Cattell, using factor analysis, found sixteen main factors of personality, while Eysenck found, through factor analysis, only four types identifying personality represented in (extroversion, neuroticism, psychoticism and lying), but Goldberg found five factors that describe personality of the individual as well as Fiske (1949), who proposed that the factors that measure and identify the personality is five factors and not sixteen ones as previously pointed by Cattell (Abdel-Qawi, Rania, 2010; Meheisen, Awn, 2013; Ali, Imad, 2010; Goldberg, L.R., 2005 and Jonathan, M. S., Susan M., 2011).

After searching for long periods for personality, scientists of psychology agreed to the five major dimensions of personality that describe the differences between individuals in the cognitive, emotional and social aspects of the behavior of individuals (Heinstrom, J., 2003). They agreed to the five-factor model of personality that examines and identifies personality consisting of five independent factors: (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and falls under those five factors a set of qualitative traits.

Many studies have confirmed that there is an overlap and correlation between personality traits and cognitive styles. Personality factors examine individual differences among individuals, and the study of these differences will be conducted only through what is known as cognitive style that reflects these differences in many aspects of personality (Goldberg, L. R., 2005).

Although the cognitive methods become play a key role and affect a significant impact on a lot of variables and personal. We still need multiple research papers so that they can find general indicators about the relationship between personality and cognitive styles. Understanding the cognitive style for students leads to appropriate educational situations for them and that lead to the development of achievement and skills (Tiedman, J., 1996). Perhaps the most famous researchable cognitive style is (rush and prudence) and this style is the subject of the current study. (Moselhi, Abdulrahman, 2001; Tiedman, J., 1996; Al-Sharqawi, Anwar, 1992; Al-Sarraaf, Qassim, 1986) indicate that individuals who tend to make rapid responses in attitudes and commit the largest number of errors called impulsive, and they are also of low adaptation, hasty with little precision, while individuals who tend to give careful responses and identify alternatives available to solve the problem called prudent, and they are characterized by a high level of adaptation and not to rush in decision-making and more precise.

As the personality factors are considered as variables that affect connect with the cognitive styles, personality factors are also important variables that affect academic achievement and achievement of the students, personality factors play a key role as in the student's personality identifying and directing his/her behavior and the extent of his/her interaction in educational situations (Salehi, Saeeda, 2013).

2. Problem of the Study

The study problem is limited to identify the relationship of the five major factors of personality to some cognitive styles and academic achievement among a sample of students of the University of Najran, and the problem can be identified in the following questions:

Is there a correlation between the five major factors of personality and cognitive style (rush – prudence) among a sample of students?

- Is there a correlation between the five major factors of personality and academic achievement among a sample of students?
- Are there statistically significant differences in the level of the five major personality factors and academic achievement due to the variable of gender?
- Are there any statistically significant differences in the level of the five major personality factors for between the impulsive (male and female students) and the prudent (male and female students)?
- Is it possible to predict through major personality factors the cognitive style, rush and prudence, and academic achievement among the study sample?

3. Objectives

The present study aims to:

1. Explore the level of the five major factors of personality among the students of the University of Najran.
 2. Identify the predictive ability of the five major factors of personality through style of cognitive rush/prudence, and academic achievement among Najran University students.
 3. Determine the relationship between the major five factors of personality through rush/prudence cognitive style, and academic achievement among Najran University students.
 4. Detect the differences in the five major factors of personality among the Najran University students due to variable of gender.
- 3.1 Required Data Input*

4. Significance of the Study

The importance of the study is summarized in the following points:

1. Scarcity of Arab research and studies, which dealt with the relationship between the five major factors of personality and cognitive styles.
2. Identifying the major personality traits shows the impact of these traits and its role in the individual's perceptions, trends, and their way in responding to environmental variables.
3. Throw light on other research papers and studies in the field of study variables.
4. Benefit from identifying the basic personality traits in the academic advising for students.
5. Cognitive styles are significant as they reflect favorite performance of individuals in organizing their perceptions and experiences.
6. Provision of literature review related to the variables of the current study that benefit the organizers of the educational process in the analysis of the current situation and to identify the dimensions of these variables.

5. Hypotheses

1. There is a correlation between the five major factors of personality and style of cognitive rush/prudence among a sample of students.
2. There is a correlation between the five major factors of personality and academic achievement among a sample of students.

3. Predicting the style of cognitive rush/prudence, and academic achievement among Najran University students through the five major factors of personality.
4. There are no statistically significant differences in the level of the five major personality factors due to the variable of sex.
5. There are no statistically significant differences in the level of the five major personality factors between the impulsive (male and female students) and the prudent (male and female students).

6. Methods

6.1 Sample

(310) of the students of College of Education at the University of Najran constituted the random sample of the current study.

6.2 Approach

The study is based on the descriptive analytical approach/method as it can analyze the study phenomenon and describe the relationship between the variables of the study, explain and analyze the results.

6.3 Instrument

First: the scale of cognitive rush/prudence:

The aim of the scale is to identify the characteristic way of the individual in handling of information and response to situations and events, and measured through the dimensions of speed and accuracy.

Reliability and validity:

The scale had been reviewed by a group of professors specialized in the field of education and psychology in order to express an opinion. At last, the scale consisted of (25) educational situations.

Table (1) shows discrimination indexes of the total score for the scale of cognitive rush/prudence.

Quartiles	Mean	Standard Deviation	T value	Significance Level
The top 27%	81.50	3.62	11.22	0.01
The lower 27%	60.80	4.56		

Table (1) shows that the “T value” is more than (3) indicating that the difference between the high level, which refers to the prudent, and the low level that refers to the impulsive is significant at a level (0.01); this means that the scale has the ability to distinguish between the two levels, which means that the scale is of high degree of validity.

Reliability of the scale calculated by Cronbach's alpha coefficient, and Table (2) shows the reliability coefficients by Cronbach's alpha to the scale of cognitive rush/prudence. Respondents (pilot survey) = (40)

Scale	
Reliability Coefficient	N=25
Cronbach's alpha coefficient	0.749

Secondly: The scale of the five major personality factors.

The scale aims to measure a range of qualitative traits, which form the individual's personality.

Reliability and validity:

The scale was reviewed by a group of professors of Psychology, College of Education, Najran University, to express their views about the appropriateness of the scale for the purpose of the study and the comprehensiveness of its dimensions and clarity of words. Some modifications have been made to apply the scale in its final draft to the pilot sample (40) male and female students.

Table (3) shows the correlation coefficients between the degree of each factor of the scale and the total score of the scale.

S.	Factor	Correlation coefficient	Significance level
1	Neuroticism	**0.675	0.01
2	Extraversion	**0.621	0.01
3	Conscientiousness	**0.602	0.01
4	Agreeableness	**0.610	0.01
5	Openness of experience.	**0.489	0.01

The above table shows that correlation coefficients values are statistically significant at the level of (0.01) pointing to validity in the results that can be reached when applying the scale.

Table (4) shows the reliability coefficients by Cronbach's alpha to the five major personality factors, pilot respondents = (40) male and female students.

Scale	N= 20
Reliability coefficient	
Cronbach's alpha coefficient	0.694

The scale has a reliability coefficient valued 0.694 and it is acceptable value, which makes the results valid when using the scale.

7. Theoretical Framework

Personality factors include five major factors that have been identified through factor analysis of personality traits and falls under each factor a set of qualitative traits that form it, these factors are:

7.1 Neuroticism

Neuroticism is a measure of affect and emotional control. Low levels of neuroticism indicate emotional stability whereas high levels of neuroticism increase the likelihood of experiencing negative emotions. Persons with high levels of neuroticism are reactive and more easily bothered by stimuli in their environment. They more frequently become unstable, worried, temperamental and sad. Resistant persons on the other hand need strong stimuli to be provoked (Howard & Howard, 1995). Individuals high on Neuroticism tend to experience and express number of negative emotions including anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability (Costa, P. T., & McCrae, R. R., 1992).

7.2 Extraversion

Extraverts tend to be more physically and verbally active whereas introverts are independent, reserved, steady and like being alone. The person in the middle of the dimension likes a mix between social situations and solitude (Howard, P.J. & Howard, J. M., 1995). Extraverts are adventurous, assertive, frank, sociable and talkative.

7.3 Openness of Experience

The factor relates to intellect, openness to new ideas, cultural interests, educational aptitude and creativity as well as an interest in varied sensory and cognitive experiences (Howard, P.J. & Howard, J. M., 1995). Traits commonly associated with this factor include being curious, perceptive, broad-minded, imaginative, creative, intelligent, artistically sensitive and cultured. Openness to Experience is a personality dimension that characterizes someone who is intellectually curious and tends to seek new experiences and be open to new ideas.

7.4 Agreeableness

This factor reflects the way you interact with others and openness to other people's feelings and emotional habits and experiences. Agreeable people can be described as altruistic, gentle, kind, sympathetic and warm (Costa, P. T., & McCrae, R. R., 1992).

7.5 Conscientiousness

Conscientiousness indicates an individual's degree of organization, persistence, hard work, and motivation in the pursuit of goal accomplishment. It is a measure of goal-directed behavior and amount of control over impulses. Conscientiousness has been linked to educational achievement and particularly to the will to achieve. The focused person concentrates on a limited number of goals but strives hard to reach them, while the flexible person is more impulsive and easier to persuade from one task to another (Howard, P.J. & Howard, J. M., 1995). The more conscientious a person is the more competent, dutiful, orderly, responsible and thorough (Costa, P. T., & McCrae, R. R., 1992).

7.6. Style of Cognitive Rush/Prudence

Al-Sharqawi, Anwar (1981) defined the style of cognitive rush/prudence as a method, which means the characteristic way of the individual to deal with and handle information, receiving or informing it. Moselhi, Abdulrahman (2001) identified this style as representing the individual's characteristic way of dealing with information, and to respond to situations and events; measured through dimensions of speed and accuracy.

7.7 Academic Achievement

The definition of academic achievement refers to the level of schooling you have successfully completed and the ability to attain success in your studies. When you receive great grades, this is an example of academic achievement. When you attend college and graduate school, this is an example of academic achievement. It is the outcome of education — the extent to which a student, teacher or institution has achieved their educational goals (Webster, Merriam, 1998). In the current study it is meant by the rate the student got in the first semester of the academic year in which the tests are made.

8. Review of Literature

Richard, J.R. & Stephen, W. (1997) conducted a study that examined the relationship between cognitive style and personality style among students in higher education, the study sample consisted of (340) students, and scales of major five personality factors were applied. The study resulted in the existence of a relationship between neuroticism and style of cognitive rush among students.

The study of (Vittorio, V. B., Frans, J. P., Jan, J. E. & Christiaan, H. 1998) examines the relationship between cognitive styles of the five major factors of personality and achievement motivation in higher education, the study sample consisted of (900) students in higher education, and study results showed a positive correlation of personality factors with cognitive styles, also found positive correlations between achievement motivation, cognitive styles and personality variables.

Richi, L. (1999) handled the relationship between personality traits and academic performance of students of the College of community. (57) Students constituted the sample of the study, and the results showed the absence of high correlation between personality factors and academic performance and that personality factors cannot be relied on to predict the academic performance of students.

Warner, S. & Sherrg, L. W. (2004) aimed to investigate the relationship between cognitive styles, personality traits, lifestyles, and the family environment, the study sample consisted of (1761) participants. The results of the study indicated that there is a relationship between two of the personality traits measured and cognitive performance among a large number of the sample, the results of the study also found that the personal dimensions associated significantly with higher performance in cognitive abilities, and that personality traits can predict cognitive styles.

V. Krieger & J. A. Amador (2014) aimed to assess the relationship between the personality dimensions and cognitive styles among a sample of teenagers numbered (45). The results of the study showed the presence of correlation relationships between personality dimensions (conscience, openness to experience, extraversion, and agreeableness) with cognitive styles.

Abdul Majeed, Nasra & Faraj, Safwat (2010) aimed to reveal the relationship of emotional intelligence to the five major personality factors, where the study sample consisted of (400) male and female university students. The results showed higher means of females' scores compared to those of males for neuroticism factor only.

9. Results and Discussion

The first hypothesis of the study: "There is a correlation between the five major factors of personality and style of cognitive rush/prudence among a sample of students." To validate the hypothesis, Pearson correlation calculated between the scores of the random sample, where N = (310).

Table (5) shows the value of the correlation coefficient between the scores of the sample at the scale of five major factors of personality and their scores at the scale of the cognitive style (rush/prudence), N = (310).

S.	Dimensions	Correlation coefficient	Significance level
1	Neuroticism	0.193**	0.01
2	Extraversion	0.086	Non-significant
3	Conscientiousness	0.145*	0.05
4	Agreeableness	0.100	Non-significant
5	Openness of experience	0.131*	0.05

Table (5) indicates the validity of the first hypothesis of the study, where there is positive correlation that is statistically significant between the dimension of neuroticism, Conscientiousness, openness of experience and the cognitive style (rush/prudence) at the level of significance (0.05) and (0.01) ranged from (0.131) as a minimum and (0.193) as maximum. It also shows a positive correlation but it is not statistically significant between the dimensions of extraversion, agreeableness and cognitive style (rush/prudence), which confirms what pointed out by several studies that there is an overlap and correlation between personality traits and cognitive styles. Secondly: The results of the second hypothesis of the study: The second hypothesis of the study states: "There is a correlation between the five major factors of personality and academic achievement among a sample of students."

To validate the hypothesis, Pearson correlation coefficient calculated between the scores of the sample on a scale of five major factors of personality and grade point average.

Table (6) shows the value of the correlation coefficient between the scores of the sample on the scale of five major factors of personality and grade point average, N = (310).

S.	Dimensions	Correlation coefficient	Significance level
1	Neuroticism	0.025**	Non-significant
2	Extraversion	0.030	Non-significant
3	Conscientiousness	0.119*	0.05
4	Agreeableness	0.086	Non-significant
5	Openness of experience	0.184*	0.01

Table (6) shows the validity of the second hypothesis of the study, where there is a positive correlation statistically significant between the dimension of Conscientiousness, openness of experience and academic achievement at the level of significance (0.05) and (0.01), it also shows a positive correlation statistically insignificant between the dimensions of neuroticism, extraversion, agreeableness and academic achievement, which confirms what pointed out by many studies, that the personal factors are important variables that affect academic achievement and achievement among students.

Consequently, the researchers see that personality factors play a key role in the student's personality and represent an effective element in identifying and directing their behaviors and the extent of interaction in educational situations. Success or failure in academic achievement associates with the student's personality traits, the researchers explain that a student who is mentally matured, independent, perseverant and orderly to achieve the desired goals, the traits that reflected by the factors of conscientiousness and openness of experience, undoubtedly has a high motivation to achievement, which helped them understand lectures and concern to do school assignment.

Thirdly, the results of the third hypothesis of the study: The third hypothesis of the study states that: "Predicting the style of cognitive rush/prudence, and academic achievement among Najran University students through the

five major factors of personality." To validate the hypothesis the researchers calculated:

First, analyzing multiple regression in order to identify the independent variables (personality factors) through which one can predict cognitive style (rush/prudence) among a sample of students as shown in tables (7) and (8):

Table (7) shows the results of multiple regression analysis of the independent variables (personality factors) on the cognitive style (rush/prudence) among a sample of students.

Variable	Sum of squares	Degrees of freedom	Mean of squares	"F" value	Significance level for "F"
Regression	668.685	5	133.737	2.684	(0.022) significant at level (0.05)
Error	15146.851	304	49.825		
Total	15815.535	309			

The coefficient of determination (R²) = 0.042

Table (8) points out the summary of results of linear regression analysis of the dimensions of the independent variables (personality factors) on the cognitive style (rush/prudence) among a sample of students:

Variance source	B	Beta	"T" value	Sig. level	R	R ²
Neuroticism	0.148	0.044	0.773	Non-sig	0.155	0.024
Extraversion	0.470	0.145	2.559	0.05	0.243	0.059
Conscientiousness	0.036	0.012	0.205	Non-sig	0.262	0.069
Agreeableness	0.311	0.0127	2.209	0.05	0.315	0.099
Openness of experience	0.157	0.052	0.885	Non-sig	0.367	0.135

It has been pointed out from regression analysis that there is a predictor statistically significant to the variable of personality factors on the style of cognitive prudence and rush among the students, where "F" valued (2.684) with significance level (0.05), and value of (R²) refers to the strength of the relationship between variables, where the variable of personality factors (4.2%) explains a statistically significant predictor for the five major personality factors, where the highest value of Beta represented in the two factors (extraversion and agreeableness).

Secondly: analyzing the multiple regression in order to identify the independent variables (personality factors) through which academic achievement among a sample of students can be predicted, as in the following tables:

Table (9) shows results of multiple regression analysis of independent variables (personality factors) on academic achievement among a sample of students.

Variable	Sum of squares	Degrees of freedom	Mean of squares	"F" value	Significance level for "F"
Regression	17.302	5	3.460	8.079	(0.000) significant at level (0.05)
Error	130.212	304	0.428		
Total	147.514	309			

The coefficient of determination (R²) = 0.117

Table (10) is a summary of the analysis of results of linear regression of the dimensions of the independent variables (personality factors) on academic achievement among a sample of students.

Variance source	B	Beta	"T" value	Sig. level	R	R ²
Neuroticism	0.025	0.081	1.469	Non-sig	0.249	0.062
Extraversion	0.054	0.169	3.072	0.05	0.218	0.048
Conscientiousness	0.042	0.143	2.445	0.05	0.624	0.079
Agreeableness	0.019	0.085	1.499	Non-sig	0.316	0.0100
Openness of experience	0.031	0.108	1.877	Non-sig	0.202	0.045

It has been pointed out from regression analysis that there is a predictor statistically significant to the variable of personality factors on the style of academic achievement among the students, where “F” valued (8.079) with significance level (0.05), and value of (R²) refers to the strength of the relationship between variables, where the variable of personality factors (11.7%) indicates a statistically significant predictor for the five major personality factors, where the highest value of Beta represented in the two factors (extraversion and conscientiousness).

Fourthly: the results of fourth hypothesis of the study: "There are no statistically significant differences in the level of the five major personality factors due to the variable of sex." To validate the fourth hypothesis, "T test" was conducted for the significance of differences between the means between male and female students in the five major personality factors and academic achievement and the results were as follows:

Table (11) explains the differences between the mean scores of the sample on the scale of five major personality factors between male and female students using “T” Test, N = (310).

Values Dimensions	Females N=154		Males N=154		“T” value	Significance level
	Mean	S.D	Mean	S.D		
Neuroticism	11.51	2.22	10.38	3.20	3.61	0.01
Extraversion	11.00	2.39	11.67	2.52	2.55	0.01
Conscientiousness	11.29	2.46	11.50	1.90	0.805	Non-significant
Agreeableness	13.32	2.56	12.83	3.31	1.45	Non-significant
Openness of experience	10.22	2.20	9.75	1.54	2.14	0.01

The results shown in table (11) refer that the fourth hypothesis of the study partially accomplished. There are differences between male and female students in the personality factor (extraversion) in favor of male students while differences between the two sexes were found in the dimensions of neuroticism and openness of experience in favor of female students, and there are no apparent differences in the dimensions (conscientiousness and agreeableness) due to the variable of sex through the values of "T" as shown in the above table. However, the researchers see that the prevailing culture and methods of socialization might be responsible for the differences in the results of the studies regarding those variables.

Fifthly: the results of the fifth hypothesis of the study, "There are no statistically significant differences in the level of the five major personality factors between the impulsive (male and female students) and the prudent (male and female students)." To validate the fifth hypothesis, the top quartile (27%) was calculated – representing the male and female prudent students and the lower quartile (27%) – representing the male and female impulsive students, in prudence and rush scale then "T test" conducted for the significance of differences between the means among the impulsive and the prudent in the five major personality factors.

Table (12) illustrates the differences between the mean scores of the sample on the scale of the five major personality factors, the impulsive and the prudent: N= (168).

Values Dimensions	The impulsive N=84		The prudent N=84		“T” value	Significance level
	Mean	S.D	Mean	S.D		
Neuroticism	11.37	2.21	11.66	2.23	0.79	Non-significant
Extraversion	10.79	2.26	11.20	2.50	1.07	Non-significant
Conscientiousness	10.66	2.06	11.93	2.65	3.30	0.01
Agreeableness	12.40	2.29	13.89	2.61	3.76	0.01
Openness of experience	10.61	2.52	9.83	1.77	2.21	0.05

The results in table (8) indicate that there are statistically significant differences between (the impulsive) and (the prudent) in some of the five major personality factors (conscientiousness, agreeableness and openness of

experience) in favor of the impulsive through "T" values, while the results showed the absence of statistically significant differences between (the impulsive) and (the prudent) for the two factors (neuroticism and extraversion); i.e. the impulsive students are more influenced by personality factors (conscientiousness, agreeableness and openness of experience), and to a large extent, this is a logical result.

It is known for the prudent personality that they usually tend to prudence, reflection thought and thoroughness when faced with a problem; this personality is marked by mental maturity, perseverance and organization to achieve the desired objectives and are therefore more affected by personality factors mentioned for the impulsive personality that tend to take random decisions without organization, as Tiedman (1996) points that the impulsive are characterized by a low level of adaptation, hasty with little accuracy, and the prudent are characterized by a high level of adaptation and not to rush in decision-making with greater accuracy and think carefully to get to actual solutions, but the impulsive respond hastily without

10. Recommendations

1. Conducting further studies about the five major personality factors model and associating it with different variables and setting a model for the personality dimensions.
2. Due to the ability of the five major factors of personality to predict the academic achievement of students, universities must provide centers for guidance and counseling, hold seminars and workshops to help students develop their personalities and modify their personality traits in order for increasing their own academic achievement.
3. Conducting annually academic and psychological evaluation of students and preparing a program for low achievers to modify the behavior of personality in order to motivate them to study and excel.

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