

The HEXACO Personality Inventory and Academic Performance in MIS Course

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ABSTRACT

This research study aims at analyzing the potential effects of personality traits on the academic performance of graduate level students in the Management Information Systems (MIS) course. We studied the relationship of three personality traits Conscientiousness, Extraversion and Openness to Experience with the academic measures of the students and found that these dimensions along with the sub-dimensions significantly predicts the academic performance of the students in the MIS course. Research implications of these findings for teaching and counseling are also discussed.

KEYWORDS: Personality, Academic Performance, HEXACO personality model, MIS course, Personality traits

1. INTRODUCTION

Students are different so they observe the world around them differently and respond differently. They have their own personality and individuality that governs the way they perceive things around them. Their interpretation of a phenomenon is influenced by their own personality traits (Bahrami, 2011). Different theorists have classified individuals into different types according to their personalities. These personality types are different from each other in various aspects. For example, introvert and extravert are two fundamentally different categories of people. Various frameworks are available to assess the personality types, e.g., Type A and Type B personality theory, the Big Five personality traits, HEXACO model of personality structure, and such.

These personality differences influence the way students learn new things, handle social situations, organize the things around them, plan for their goals, and perform in different courses. Management Information Systems (MIS) is a multidiscipline field of study, hence requires a good mix of knowledge from both business and IT domain. However, there is a lack of adequate research addressing the role of personality traits in the prediction of students academic performance in this multidiscipline field. The paucity of research motivated us to study the relationships of personality traits of the students and their academic performance in MIS course.

Following sections discuss how we define personality, how we measured personality traits using HEXACO personality inventory, which measures we used to gauge the academic performance in the course, how we collect data, its analysis, discussion of the results, practical implications of our findings and the future directions.

2. Personality. Different theorists have classified individuals into different types according to their personality. These personality types are different from each other in various aspects. For example, introvert and extravert are two fundamentally different categories of people. Another classification is to divide individuals into two personality types; type A and type B. Type A individuals are impatient, achievement oriented, extremely competitive and sensitive to time urgency, while Type B individuals are easy going, relaxed, not sensitive to time urgency and not easily aroused by enmity. (Cassidy, 1999)

The Big Five personality traits model, also referred to as Five Factor Model (FFM) is another framework that provides the five personality dimensions: Openness to experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism. This theory continues to be verified since last five decades. It started with the research of D.W Fiske (1949) and was further studied in detail by Norman (1996), Goldberg (1981) and McCrae & Costa (1987). Costa & McCrae(1992) also proposed a model for the understanding of the relationship between personality and various academic behaviors.

The HEXACO personality structure is a model comprising of six dimensions of human personality. Ashton and Lee (2006) were first designers of this model that is based on their findings from multiple lexical studies which involved many Asian and European languages. The six dimensions of HEXACO model are Honesty-Humility (H),

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Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C) and Openness to experience (O). Each of the six dimensions is comprised of different traits with such characteristics that depict the level presence of that dimension. The HEXACO model was build on the work of Costa & McCrae (1992) and Goldberg (1993) and is developed using same methodology as other trait taxonomies so it has many common elements with other models. The uniqueness of HEXACO personality model is because of the of added dimension of Honesty-Humility (Ashton & Lee, 2007).

3. HEXACO Personality Dimensions. Ashton and Lee (2015) describe HEXACO personality dimensions in the following way:

3.1. Honesty-Humility. Manipulating others to achieve personal gains are avoided by persons who have a high score on the scale of ‘Honesty-Humility’. Not feeling tempted enough to break certain rules, getting uninterested towards luxuries and lavish wealthy lifestyle and feeling no concerns entitled to social status being elevated, are also the key habits of people falling in this scale. On the other hand, people who have low scores on the same scale, may flatter other people to earn their personal gains, concentrate on personal profits and even break rules for this purpose, have high motivation towards materialistic gains, and self-importance has a strong sensation in such persons.

3.2. Emotionality. The stresses of Life make people fall in anxiety, and physical dangers encrypt fears. Seeking emotional support from other people, and having sentimental and emotional attachments with other persons, are the qualities of people having high scores in ‘Emotionality scale’. People with low score on this scale are not afraid of getting injured physically, worry little in situations of stress, don’t share their concerns with other people, and are emotionally detached from surroundings.

3.3. Extraversion. In the case of ‘Extraversion scale’, the persons securing high scores on it enjoy social interactions and gatherings, have a positive feeling about themselves, are confident when addressing and leading a group, and exhibit positive feelings of energy and enthusiasm. On the other hand, people having low score on the scale, have feelings of being optimistic, less lively, not responsive to being social attention’s center of attraction, may consider to be unpopular, and are indifferent to the social activities compared to other activities.

3.4. Agreeableness (versus Anger). People who score high on ‘Agreeableness Scale’ forgive those who have committed wrong. They also are lenient when judging others, cooperate, and compromise or are willing to do so, and have control on their temperament. On the opposite end, persons with low score on this scale are inclined in holding grudges against others especially for those who harm them, the shortcomings of others’ are taken as critical by them, are stubborn when justifying their point-of-view, and feel angry when mistreated and do pose a reaction against it.

3.5. Conscientiousness. An organized behavior is expected of persons who score high on ‘Conscientiousness Scale’. They organize their physical surroundings and time, try to achieve their goals in a systematic way, work for perfection and accuracy in each of their task and carefully think while decisions are to be made. People scoring low on this scaled, are not concerned with the schedules or surroundings, avoid challenging and difficult situations, are simple going people who do not get angry on errors and make impulsive decisions.

3.6. Openness to Experience. People having high scores on scale of ‘Openness to Experience’ are the ones who are fond of beauty portrayed in nature and art, use free imagination in their everyday life experience, are quite inquisitive about various aspects related to knowledge, and are attracted to unusual people and ideas. On the other hand, people having low scores in this scale are the ones not impressed by art work, do not feel enough intellectual curiosity, feel low attraction to unconventional or radical ideas and avoid pursuit to creativity.

Table 1. shows the HEXACO personality model.

Table 1. HEXACO-PI-R Scales

Personality Dimensions	Sub-Dimensions
Honesty-Humility (H)	Sincerity Fairness Greed-Avoidance Modesty
Emotionality (E)	Fearfulness Anxiety Dependence Sentimentality
Extraversion (X)	Social Self-Esteem Social Boldness Sociability Liveliness
Agreeableness (A)	Forgiveness Gentleness Flexibility Patience
Conscientiousness (C)	Organization Diligence Perfectionism Prudence
Openness to Experience (O)	Aesthetic Appreciation Inquisitiveness Creativity Unconventionality

4. Background of the Study. Investigating the relationship between personality types of individuals and their different kinds of behavior has been an area of interest for many researchers. For example, Baharami (2011) investigated the difference of verbal memory and visual perception of university students with different personality types. He concluded that personality characteristics in individuals have an influence on cognitive perception, and individuals with different types differ in perception and memory.

Researchers also tend to study the relationship of different personality traits with the academic performance of students on different educational levels. As several studies identified that the personality factors explain more variance in students' performance than their cognitive ability (Conard, 2006; Furnham & Mosen, 2009; Heaven & Ciarrochi, 2012; Nofle & Robins, 2007; Poropat, 2009; Zeigler et al, 2010). Moreover, some researchers proposed the need for such studies in relation to students' performance in different courses as compare to their overall academic performance, e.g. GPA.

This research study investigates the relationship between HEXACO personality model and the academic performance of students in the Management Information Systems (MIS) course. The objective of this course is to understand the role of information systems in businesses and management. One of the key learning outcomes of this course is to understand the interaction of systems with the environment so that the organizational and management solutions to achieve the competitive edge can be suggested through the use of information technology. In this course, the performance of students was assessed throughout the semester with the help of group activities, projects, presentations, individual assignments, class tests, case studies, and exam papers.

5. Objectives of the Study.

- To investigate the relationship between HEXACO personality dimensions and students performance in the MIS course.
- With respect to the sub-dimensions of HEXACO personality model, our objective is to examine which specific personality traits predict the performance of students in the MIS course.
- To see the effects of gender and major of the students on their MIS course performance.

6. Hypotheses.

From the studies related to personality-academics research, we came to know that among different personality dimensions, Extraversion, Conscientiousness, and Openness to Experience show more variance in academic performance of the students than other dimensions. So, we hypothesized as:

H1: Extraversion along with its sub-dimensions is positively related to academic performance of the students in the MIS course.

H2: Conscientiousness along with its sub-dimensions is positively related to academic performance of the students in the MIS course.

H3: Openness to Experience along with its sub-dimensions is positively related to academic performance of the students in the MIS course.

7. Methodology.

7.1. Sample. Our sample consisted of 80 students (15 males and 65 females) enrolled in the MIS course that was offered to them in the first semester of their degree; Master in Business and Information Technology (MBIT). MBIT is equivalent to 18 years of education.

The participants were on the same level of education at the time of data collection. Before getting admission in their current degree, they were required to obtain Bachelors of Business and Information Technology (BBIT), which is equivalent to 16 years of education.

The range of students age was 21 to 24 years, with a mean of 22.51 years and standard deviation of 0.742. Descriptive statistics of our sample can be found in Table 2.

Table 2. Descriptive Statistics - Sample Profile (N = 80)

	Frequency	Percent
Gender		
Male	15	18.8
Female	65	81.3
Total	80	100.0
Age		
21	5	6.3
22	36	45.0
23	28	35.0
24	7	8.8
Total	76	95.0
Missing	4	5.0
Total	80	100.0
Major		
Marketing	18	22.5
Finance	56	70.0
IT	6	7.5
Total	80	100.0

7.1. Academic Performance Measure:

At the end of first semester, the detailed grade sheet of the students was obtained from the MIS course instructor who is one of the researchers of the present study. The following four measures of academic performance in MIS course were taken from the grade sheet.

1. Total scores; consists of total scores obtained in midterm and final term exam papers, and in all semester activities like class tests, group activities, projects, presentations, individual assignments, and case studies.
2. Class Tests; consists of scores obtained in five class tests taken during the semester.
3. Group projects; consists of scores obtained in the two group projects.
4. Exam papers; consists of scores obtained in the two exam papers, midterm and final term exam paper.

The scores of the four performance measures are assigned on the scale of 1-100, where 50 is passing score and 85 and above is 'A' grade. Descriptive statistics can be found in Table 3.

Table 3. Descriptive Statistics - Academic Performance (N = 80)

	Mean	Median	Std. Deviation	Minimum	Maximum
Class Tests	71.72	73.00	7.113	38	86
Exam Papers	73.63	74.00	7.557	52	90
Group Projects	79.04	80.00	5.417	68	88
Total Scores	75.23	76.00	6.212	59	87

Personality Dimensions Measure:

The Urdu translated version of 60-item HEXACO-PI-R scale was used to assess the personality traits of our respondents. The HEXACO personality inventory by Ashton & Lee (2009) measures the six major dimensions of personality; Honesty-Humility, Emotionality, extraversion, Agreeableness, Conscientiousness, and Openness to Experience and twenty four sub-dimensions of personality (Table 1). All 60 items requires the response on a five-points Likert Scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Two parallel translations of the English version of 60-items HEXACO-PI-R were made in Urdu language by two experts. The experts then sit together and discuss the differences between the translations and merge their versions for more suitable translation. Both experts were familiar with both English and Urdu languages. This Urdu translated version were then back-translated in English language by three other bilingual experts independently.

All of these back-translations were sent to the original authors of the scale Dr Kibeom Lee and Dr Michael C. Ashton. With minor adjustments, they approved our Urdu translated version of HEXACO-PI-R-60.

RESULTS

Following are some descriptive statistics regarding academic performance.

Comparing Academic Performance by Gender:

Table 4. presents the mean and standard deviations of our all four measures of academic performance differentiated by gender. In our sample students, females secured higher scores in all four measures of academic performance in their MIS course i.e. class tests, exam papers, group projects and total scores. The deviation of in the scores of male students in their exam papers (Std. Deviation = 11.061) is also quite high, as compared to other deviations in academic measures.

Table 4. Gender and Academic Performance

Gender		Class Tests	Exam Papers	Group Projects	Total Scores
Male N=15	Mean	68.87	68.93	73.40	70.40
	Std. Deviation	6.424	11.061	5.792	9.341
Female N=65	Mean	72.12	74.17	80.17	75.86
	Std. Deviation	7.411	7.563	4.645	6.108
Total N=80	Mean	71.51	73.19	78.90	74.84
	Std. Deviation	7.310	8.500	5.522	7.092

Comparing Academic Performance by Major:

As discussed in research methodology section, the respondents of the study were in the first semester of their MBIT degree. Before their admission in this degree, they obtained BBIT (Hons.) with the options of taking one of the three majors i.e. Marketing, Finance and IT. To see whether the choice of their major has any effect on their performance in MIS course, we compared the means and standard deviations of all four measures of academic performance differentiated by their major. Table 5. presents the results.

Table 5. Major and Academic Performance

Major		Class Tests	Exam Papers	Group Projects	Total Scores
Marketing N=18	Mean	68.78	70.83	77.50	73.56
	Std. Deviation	6.208	8.733	6.336	6.810
Finance N=56	Mean	72.46	74.52	79.34	75.73
	Std. Deviation	7.415	7.050	4.795	5.986
IT N=6	Mean	70.83	67.83	79.00	70.33
	Std. Deviation	8.424	16.167	9.121	14.264
Total N=80	Mean	71.51	73.19	78.90	74.84
	Std. Deviation	7.310	8.500	5.522	7.092

We found that students with major in Finance secured highest scores in all four measures of academic performance in MIS course i.e. class tests, exam papers, group projects and total scores. Students with IT major secured higher scores in class tests and group projects than the students with major in Marketing and lower in exam papers and total scores.

Internal Consistency of the scale:

We, then, measured the internal consistency and reliability of our measuring scale i.e. the personality dimensions of our respondents. Cronbach's Alpha is a commonly accepted measure for describing the internal consistency of the scale. Table 4 shows the Cronbach's Alpha values of three personality dimensions.

Table 6. Cronbach's Alpha for Internal Consistency

Dimensions	Cronbach α	No. of items
Extraversion	0.639	10
Conscientiousness	0.711	10
Openness to Experience	0.648	10

George & Mallery (2003) and Kline (200) provide the following rules of thumb to interpret the values of Cronbach's Alpha: " $\alpha \geq .9$ – Excellent (high stake testing), $0.7 \leq \alpha \leq .9$ – Good (low stake testing), $0.6 \leq \alpha \leq .7$ – Acceptable, $0.5 \leq \alpha \leq .6$ – Poor, and $\alpha < .5$ – Unacceptable". Based upon this rule of thumb, the Cronbach's alpha values are acceptable.

Correlations:

The correlation between all four measures of academic performance in MIS course and the personality dimensions of the students taking this course were performed on our data. Following sections present the correlation results of all three personality dimensions along with their sub-dimensions.

Extraversion and Academic Performance:

The correlations between students performance in MIS course and their personality trait Extraversion along with its sub-dimensions *Social Self-Esteem*, *Social Boldness*, *Sociability* and *Liveliness* are presented in Table 7.

Table 7. Correlations between Extraversion traits and MIS course scores

	Class Tests	Exam Papers	Group Projects	Total Marks
Social Self-Esteem	.046	.082	-.018	.058
Social Boldness	.038	.192	.290**	.179
Sociability	-.034	.035	-.001	.011
Liveliness	.315**	.224*	.179	.200
EXTRAVERSION	.126	.195	.164	.162

* $p < 0.05$, ** $p < 0.01$

Although we did not find any significant correlation between Extraversion and any of the four academic measures of MIS course performance, but the sub-dimension of this personality trait *Liveliness* is found positively correlated with class tests and exam papers performance. Moreover, we found that another sub-dimension of Extraversion, *Social Boldness* is also positively correlated with the scores of group projects. This finding partially confirms our first hypothesis H1.

Conscientiousness and Academic Performance:

The correlations between students performance in MIS course and their personality trait Conscientiousness along with its sub-dimensions *Organization*, *Diligence*, *Perfectionism* and *Prudence* are presented in Table 8.

Table 8. Correlations between Conscientiousness traits and MIS course scores

	Class Tests	Exam Papers	Group Projects	Total Marks
Organization	.295**	.288*	.265*	.283*
Diligence	.115	.218	.138	.189
Perfectionism	.034	.150	.150	.114
Prudence	.262*	.416**	.158	.344**
CONSCIENTIOUSNESS	.252*	.369**	.249*	.323**

* $p < 0.05$, ** $p < 0.01$

Table 8 shows the significant positive correlation between Conscientiousness and all four academic measures of MIS course. Also, one of the sub-dimensions of Conscientiousness, *Organization* is significantly and positively correlated with all four academic measures of MIS Course. Another sub-dimension *Prudence* is also positively correlated with class tests, exam papers and total marks of MIS course. These findings confirm our second hypothesis H2.

Openness to Experience and Academic Performance:

The correlations between students performance in MIS course and their personality trait Openness to Experience along with its sub-dimensions *Aesthetic Appreciation*, *Inquisitiveness*, *Creativity* and *Unconventionality* are presented in Table 9.

Table 9. Correlations between Openness to Experience traits and MIS course scores

	Class Tests	Exam Papers	Group Projects	Total Marks
Aesthetic Appreciation	.108	.082	.146	.076
Inquisitiveness	.108	.154	.153	.173
Creativity	.108	.035	.115	.056
Unconventionality	.033	.233*	.196	.215
OPENNESS TO EXPERIENCE	.140	.178	.223*	.187

* p < 0.05, ** p < 0.01

We found the positive correlation between Openness to Experience and group project scores of MIS course. A sub-dimension of Openness to Experience, *Unconventionality* is also found to be positively correlated with exam papers scores of our study respondents. These findings also partially confirm our third hypothesis H3.

DISCUSSION

This study revealed that personality traits of the students are one of the predictors of their academic performance. Among the three personality traits studied in this research, Conscientiousness is the strongest predictor of the academic performance of the students in the course of MIS, with $r = .252$ ($p < 0.05$), $.369$ ($p < 0.01$), $.249$ ($p < 0.05$), and $.323$ ($p < 0.01$) for class test, exam papers, group projects and total marks respectively. It shows that the higher the score of a student on Conscientiousness, the better would it likely to score in MIS course. This result leads to the finding that the students who organize their time and their physical surroundings, work in a disciplined way toward their goals, strive for accuracy and perfection in their tasks, and deliberate carefully when making decisions may score higher in MIS course than others. This finding is consistent with the previous personality academics studies e.g. Chamorro & Furnham (2003), Conard (2006), De Vries et al. (2011), Khan & Sarwar (2015), Nofle & Robins (2007) and Richardson & Abraham (2009), these mentioned studies also found positive correlation between conscientiousness and academic performance.

Within the sub-dimensions of the scale Conscientiousness, the positive correlation of *Organization* leads to the findings that the students who keep things tidy and prefer a structured approach to the tasks are more likely to achieve higher scores in all four academic measures of MIS course. Same relation is found between *Prudence*, another sub-dimension of Conscientiousness, and academic measures of the course. We uncovered that the students who consider their options carefully and tend to be cautious and self-controlled may perform better than the ones who act on impulse and tend not to consider consequences.

Openness to Experience is another personality trait from HEXACO personality model that predicts the academic performance of student in MIS course with $r = .223$ ($p < 0.05$) with group projects scores. The conclusion can be drawn that the students who are inquisitive about domains of knowledge, use their imagination freely in everyday life, and take an interest in unusual ideas are more likely to perform better in their MIS course than the ones who feel little intellectual curiosity, avoid creative pursuits, and feel little attraction toward ideas that may seem radical or unconventional.

Although the previous research suggest that the relationship between Openness to Experience and academic performance may depend upon the nature of course, but our finding justify the positive relationship between the two. As MIS is a multidiscipline domain so its rationalizes the good performance of the ones who are inquisitive about different domains of knowledge.

The *Liveliness*, a sub-dimension of Extraversion, is positively correlated with class tests and exam papers with $r = .315$ ($p < 0.01$) and $.224$ ($p < 0.05$) respectively. The *Liveliness* scale assesses one's typical enthusiasm and energy. High scorers usually experience a sense of optimism and high spirits. (Ashton & Lee, 2015). The *Social*

Boldness, another sub-dimension of the same scale assesses one's comfort or confidence within a variety of social situations. High scorers are willing to approach strangers and are willing to speak up within group settings. Interestingly, our study revealed statistically significant relationship of *Social Boldness* with the group projects scores with $r = .290$ ($p < .001$). The students who are good team players and willing to interact within group setting are more likely to perform well in MIS course, especially in group projects.

Practical Implications:

Personality traits play important part in the students' understanding of the MIS course as depicted by the associations revealed and reinforced in the study. The findings of the study has got great implications for teaching as well as for mentoring the students to carry on with the specific domain as their career.

As the personality traits expressed in the learning styles of the students, so knowing about the specific dimensions of their personality, teachers may adopt the most suitable teaching practices. Also, the most relevant type of semester activities can be planned for the better understanding of the course. As discussed, the course is multi-discipline in its nature. So, it is quite interesting and beneficial to identify the type of personalities who can continue this discipline as their successful careers.

Future Directions:

We may extend this study by gauging the performance of the same respondents in follow-up courses and grand projects to make it a longitudinal study as compared to the current one that is a cross sectional study. We may then gauge their job success through various measures like the business sector they joined, the nature of their entry level job, and the level of their startup salaries to further strengthen and enrich the domain of personality-performance research.

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