



Predicting Educational and Career Success: A Comprehensive Study of Personality Traits and Intelligence in University Students

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Abstract

In university years, personality traits are the main aspect of boosting personality grooming, academic growth, profession, and intelligence. Therefore, the current study aims to investigate the relationship between personality types and levels of intelligence among university students. In this cross-sectional study, the sample was collected from different colleges and universities. A purposive sampling technique was used to collect the data from students of (N = 300) which included two categories: disciplines of courses, i.e., science (n = 150) and arts (n = 150), and graduation (n = 150) and post-graduation (n = 150), respectively, through Revised NEO Personality Inventory and Ravens Standard Progressive Matrices Test. The collected data was prepared for statistical analysis and analysed using SPSS, Version 26. The data showed that science students are smarter than arts students, and their personality types differ. Graduate students had similar personality patterns, whereas course students had significant disparities in intellect and personality types. Neurotic people scored lower on intelligence than conscientiousness participants. Students from the science group score more on intelligence than arts students, while post-graduate students score higher than graduates. Personalities differ in both comparison groups. Distinct courses have different intelligences and personalities.

Keywords: Intelligence, Personality traits, Education and Occupation, University Students

1. Introduction

University is a learning place for professional growth, academic excellence, and personal achievement when individuals transition from adolescence to adulthood, seeking knowledge, expanding horizons, and forging lifelong connections (Hansen & Pedersen, 2012). It is a very important time for growth and development, and students learn many things during it (Hanushek, 2013). University life offers an environment that encourages students to explore their passions, question the world around them, and challenge conventional wisdom (Hess, 2002). Personality traits are permanent patterns of ideas, feelings, and behaviours that determine how people see and interact with the world (Bleidorn et al., 2019). They influence how individuals perceive and respond to challenges and navigate relationships (Fredrickson, 2013). Broadly there are five parameters (Openness, Conscientiousness, Extraversion and Introversion, Agreeableness, and Neuroticism) that describe an individual's personality. These five dimensions are entitled as the "Big Five" Factor (Widiger & Oltmanns, 2017).

Big Five Factor Conscience (positive), extraversion, and neuroticism (negative) were found again to be significant predictors of academic exam scores. Neuroticism, extroversion, and conscience seems to play a role in the relevant underlying processes of each academic performance, but how exactly are these qualities related to academic achievement. The relationship between academic performance and neuroticism is of particular concern, particularly in the context of stressful circumstances such as university exams (Hembree, 1988; Seipp, 1991). Similarly, another research concluded that relationship between academic performance and personality traits (Chamorro, Premuzic, Furnham, 2003b).

Over the past decade, the number of personality correlation Academic performance (AP) research has increased (Chamorro et al., 2004; O'Connor & Paunonen, 2007). These findings show that conscientiousness is the most important correlate of AP, explained by tenacity, self-discipline, and nature-based student performance (Chamorro-Premuzic & Furnham, 2004). Openness to experience, which measures aesthetic, creative, and intellectual curiosity, is positively correlated with AP (O'Connor & Paunonen, 2007). Although awareness's effects on AP are independent of IQ, intelligence and conscientiousness are negatively correlated (Moutafi et al., 2004) have suggested conscientiousness can counteract "poor cognitive performance" (Chamorro-Premuzic & Furnham, 2004, 2006). But the overlap between openness and AP is generally taken as cognitive capacity. Openness and capacity measurements, such as crystallised test ability, correlated in the $r = .2-.4$ range (Weiss et al., 2021). Indeed, it has been suggested that there is a causal relationship between the openness and knowledge-based intelligence components, meaning that those who are open are more likely to engage in "activities that support the acquisition of information" (Chamorro-Premuzic & Furnham, 2004, 2006).

The most well recognised characteristic theory in existence today, the Big Five theory of personality, acknowledges the five personality traits' frequent recurrence across research (particularly factor-analytic investigations) and even between theorists (Sternberg, 2001). Moreover, the researchers noted that neuroticism

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can also impair performance on psychological intelligence (Zeidner and Matthews, 2000). Personality trait of neuroticism is primarily associated with emotional well-being and mental health, it can have some indirect effects on intelligence (Yusoff et al., 2021). Nowadays the most popular trait theory, the Big Five theory of personality acknowledges the five personality traits' regular recurrence across research (particularly factor-analytic investigations) and even between theorists (Extremera et al., 2020). Neuroticism, as a personality trait, can affect how an individual's emotional state and coping mechanisms influence their cognitive performance and problem-solving abilities. However, it is just one of many factors that contribute to an individual's overall intelligence (Nasti et al., 2023).

The study focuses on the relationship between personality types and intelligence, as well as how personality types and intelligence affect education and occupation. The Big Five model of personality is a great depiction of personality types; these types are also studied on a biological basis, so each type has an impact on a person's performance, which is why it is interesting to know which type has a higher level of intelligence (Elngar et al., 2020). Personality is very influential on intelligence; hence, it is interesting to know which type of personality would significantly correlate with intelligence. Each personality type has distinct characteristics that influence intelligence. Personality is a construct similar to intelligence in that a single prototype does not exist. Personality is the set of relatively permanent patterns that characterise and can be used to classify individuals, so it is interesting to know which type of personality is positively correlated and which type is negatively correlated (Walumbwa & Schaubroeck, 2009). Strong evidence supports the evaluation of personality traits as predictors of education and occupation. First, it has been proposed that certain behaviours that may impact academic success are influenced by behavioural tendencies expressed in personality traits. Additionally, it was determined that "individual differences in specific personality traits can be justifiably hypothesised to be related to education and occupation to the extent that evaluations of performance in an academic programme and occupation are influenced by characteristic modes of behaviour such as perseverance, conscientiousness, talkativeness, dominance, and so forth." Another justification for using personality qualities as indicators of schooling and profession is that, in contrast to cognitive ability, which reflects an individual's capacity, personality traits represent an individual's willingness to perform certain things (Furnham & Chamorro-Premuzic, 2004). In other words, it's believed that a measure of usual performance, such a personality scale, may be a more accurate predictor of long-term academic and occupational success (Higgins et al., 2007).

Given that intelligence is measured in relation to education and training, personality traits may be particularly important for predicting education and occupation—the study's main focus. The above-mentioned arguments provide us great motivation to investigate personality traits as indicators of career and education. Barret & William (2002) assumed that intelligence relates quite well to academic courses, and thus many abilities match with subjects of study. Most people perform well in the subjects for which they possess the exceptional ability. People are likely to be more productive, however, if they use their best abilities to their fullest extent rather than relying on those that are weak; in this way, people utilise minimum energy to gain maximum benefits.

The present study is an attempt to create awareness among academia about the importance of personality traits and level of intelligence effect on the education and occupation. It is assumed that educational level and occupation will affect intelligence because education is a training programme that polishes abilities, and thus their intelligence will be high. Training facilitates the individual's ability to perform better in certain problem-solving situations. Many past studies have revealed the impact of educational levels on both intelligence and occupation.

1.1. Study Hypotheses

On the basis of the literature, the following hypotheses were structured; such as,

H₁. There would be a significant positive correlation between personality traits (to openness to experience, extraversion, conscientiousness, and agreeableness) and Intelligence

H₂ There would be a significant negative correlation between personality trait (neuroticism) and Intelligence.

H₃ Personality types and intelligence would be significant predictors of education level and occupation.

2. Method

2.1. Participants

The study was conducted in Sargodha city, using Purposive Sampling for two major groups: graduation (n = 150), post-graduation (n = 150), educational level, and occupation for further categories such as Doctors (n = 60), engineering (n = 60), teachers (n = 60), bankers (n = 60), and social workers (n = 60).

2.2. Inclusion and Exclusion criteria

2.2.1. Inclusion Criteria

The study included university students from both graduation and post-graduation levels in Sargodha city, as well as participants from various professions such as doctors, engineers, teachers, bankers, and social workers.

2.2.2. Exclusion Criteria

Participants who did not meet the specified educational levels or professional categories, and those who did not provide complete data on the Revised NEO Personality Inventory and Ravens Standard Progressive Matrices Test, were excluded from the analysis.

2.2.3. Instruments

Demographic form: A demographic form that collects data on things like age, education, family structure, financial status, marital status, number of family members overall, work status, etc..

2.3. Revised NEO Personality Inventory

The Revised NEO Personality Inventory (Costa & McCrae, 1992) is a well-respected personality evaluation. There are 240 personality items in it. Five-point ratings are used in the item format: strongly disagree, disagree, agree, neutral, and highly agree. For domain scales, internal consistency coefficients range from .86 to .95, while for facet scales, they range from .56 to .90. coefficients of stability ranging from .51 to .83.

2.4. Ravens Standard Progressive Matrices Test

Ravens Standard Progressive Matrices Test (Raven, 1956) was employed to gauge the participants' level of intelligence. It has long been established that the Ravens Standard Progressive Matrices Test is a viable and trustworthy indicator of IQ. The 60 problems of the Raven Standard Progressive Matrices Test are broken down into 5 sets, each with 12 problems. Anatolia (1976) It has been determined to be valid and reliable; the reliability coefficient falls between 0.70 and 0.80.

2.5. Procedure

The participants were chosen using the aforementioned sampling approach after receiving approval from the relevant university authorities for the data collection. The participants' informed consent was obtained before they were allowed to participate in the study. They were informed of the study's goals and given the assurance that the data gathered through the questionnaires would be treated in strict confidence and utilized only for that reason. Additionally, individuals were advised of their ability to discontinue participation in the study at any time. Finally, data were collected on 320 forms but after the data collection, 20 forms were discarded due to conspicuous disparity and omitted information as some forms were not completed. After the process of data collection, it was entered into SPSS for analysis

3. RESULTS

Table 1

Correlation Coefficients of Revised NEO Personality Inventory Scores with Intelligence Scores (N=300).

Subscales	α
Neuroticism	-.64***
Extraversion	.64***
Openness	.65***
Agreeableness	.62***
Conscientiousness	.63***

Table 1 reveals that Intelligence was positively correlated (***) $p < .001$ with openness to experience, extraversion, conscientiousness, and agreeableness. Whereas it has a Negative correlation with Neuroticism.

Table 2

Regression Analysis for Variables Predicting Educational level from Personality Traits and Intelligence (N=300).

Predictor	B	R ²	F
Intelligence	.36**	.60	23.52***
Neuroticism	-.08*	.64	25.91****
Extraversion	.75**	.61	17.92***
Openness	.89**	.62	18.32***
Agreeableness	.78*	.65	29.22****
Conscientiousness	.70**	.59	15.22****
Personality TS	.73**	.58	45.65***

* $p < .05$, ** $p < .01$, {F (2,299), $p^{***} < .001$, $p^{****} < .000$

Regression analysis was employed to predict educational level. Intelligence and Neuroticism were significantly contributed towards educational level, as shown in Table 2 and $F(2, 299) = 25.91$, $p < .01$, $R^2 = .64\%$ and R^2 exhibits that 64% variance in educational level is accounted by neuroticism and intelligence.

Table 3

Regression Analysis for Variables Predicting Occupation from Personality Traits and Intelligence (N=300).

Predictor	B	R ²	F
Intelligence	.67**	.59	92.78***
Neuroticism	-.068*	.54	82.63****
Extraversion	.80**	.57	67.82****
Openness	.79*	.52	78.38***
Agreeableness	.78*	.60	69.34***
Conscientiousness Personality TS	.70**	.56	63.31****
	.73**	.55	75.15***

* $p < .05$, ** $p < .01$, { $F(2,299)$, $p^{***} < .001$, $p^{****} < .000$

Regression analysis was employed to predict occupation. Intelligence and Neuroticism significantly contributed towards occupation, as shown in Table 3 and $F(2, 299) = 82.63$, $p < .01$, $R^2 = .54\%$ and R^2 exhibits that 54% variance in occupation is accounted by neuroticism and intelligence. Intelligence and Extraversion significantly contributed towards occupation, $F(2, 299) = 67.82$, $p < .000$, $R^2 = .57\%$ and R^2 demonstrate that 57% variance in occupation is accounted by Extraversion and intelligence.

4. Discussion

University life plays a pivotal role in shaping one's academic performance and future occupation (Ryan et al., 2010). It offers a unique opportunity for development of personality and intellectual growth, providing a diverse range of courses, extracurricular activities by interacting with peers and professors (Fetterman & Robinson, 2012). The purpose of the current study was to ascertain the relationship between intelligence and personality traits in college students, such as neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Following a thorough analysis of the data, the following conclusions are discussed:

The result of the present study is supported by the literature that personality traits such as extraversion, openness to experience, agreeableness, and conscientiousness relate to higher level of intelligence (Mahasneh et al., 2015). Extroverted individuals often excel in social interactions and may possess strong verbal and interpersonal intelligence, while those high in openness to experience tend to embrace novel ideas and have a heightened curiosity, potentially indicating a broader range of intellectual interests (Fry et al., 2023). A component of the human personality, intellect functions within the framework of personality. In order to possess utility, intelligence must assess a characteristic that is both unique and distinct from conventional personality traits (Almlund et al., 2011)

Agreeableness may contribute to effective collaboration and communication, which can enhance cognitive abilities in group settings, while conscientious individuals often demonstrate strong organizational and planning skills, which can lead to more efficient learning and problem-solving (Mumford et al., 2010). Although these traits alone do not guarantee higher intelligence, they can complement and enhance an individual's intellectual capabilities, contributing to a more well-rounded and adaptable cognitive profile (Schmitt et al., 2007). Other research supported that relation between extraversion and educational level, although it is most often positively associated with education (O'Connor & Paunonen, 2007). The correlations seen between education and the Big Five personality traits mirror the patterns of correlation between intelligence and agreeableness and degree of education that have been documented in the literature. Certain theorists contend that the Big Five personality traits are very vague and overly broad to effectively forecast certain behaviours inside specific scenarios (Soto & Jackson, 2020). Therefore, the results of the research demonstrated a positive link between Personality Type Intelligence and the following traits: extraversion, openness, agreeableness, and conscientiousness; conversely, a negative correlation was observed with neuroticism.

Furthermore, according to the data's statistical analysis, neuroticism personality trait negatively significant to educational level, occupation and intelligence. Consistent with the findings of a prior investigation, individuals who exhibit minimal neuroticism tend to be tranquil, at ease, resilient, self-assured, secure, and comparatively immaculate (Ożańska-Ponikwia & Dewaele, 2012). Additionally, a study in which similar results with the current research correlation ($r = .62$) and concluded that personality and intelligence predicted education likewise occupation is predicted by personality and intelligence (Murtza et al., 2021). Recent research has demonstrated that IQ and personality (with the exception of neurotic traits) may have a substantial correlation, and that this correlation can be used to predict a variety of academic results (Chamorro-Premuzic and Furnham, 2003). For academic performance, intelligence testing has been the subject of substantial scientific inquiry over the past century (Alloway, 2010). Intelligence is the ability to utilize information, memory, understandings, experiences, logics, thoughts and conclusions in order to unknot tribulations, and acclimatize to new situations (Legg, & Hutter, 2007). Additionally, an individual's personality might exert an impact on their capacity to acquire and analyse information (John & Gross, 2004) which subsequently forecasts their performance on aptitude assessments. Nevertheless, while intelligence and achievement are distinct concepts, they nevertheless exhibit a profound link (Sari, 2015).

5. Conclusion and Implications

All the results of the current research showed that there is a positive relation between personality traits and intelligence level in university students. It was found that students from low intelligence have lower academic achievement as compared to the academic achievement of students from higher intelligence level. Furthermore, Regression Analysis also revealed that intelligence and neuroticism were the strong positive predictor of level of education and occupation in University Students. The findings of this research underscore the significance of teacher-student counselling services in providing direction for the development of effective teaching and instructional methods among pupils, a critical determinant in the cultivation of intelligence and subsequent attainment of high academic standing. The present study also increases the worth of ability and intelligence testing in educational, occupational and business institutions as well as signifies the need in Pakistan. The study has opened new arenas for research endeavours at exploring intelligence as a predictor of occupational choice and successful job performance.

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