Big Five Personality Traits and its relation to Academic Achievement of Post-graduate Students

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Academic achievement serves as the foundational stage for an individual's future career and education. Personality appears to significantly influence academic achievement. The Big Five personality traits provide a well-established framework for comprehending primary dimensions of human personality. This study seeks to investigate the connection between the Big Five Personality Traits (BFPTs) and the academic achievement of postgraduate students. The research is a descriptive survey involving 400 postgraduate students from Gauhati University in Assam, with an equal distribution of 200 male and 200 female participants. The sample also includes an equal number of students from Arts and Science stream, with 200 students from the Arts stream and 200 from the Science stream. The tools used in this study were the Big Five Personality Inventory (2020) by Prof. K.S. Misra and the end-semester results of the respective participants. The findings indicate that gender does not influence BFPTs, but science stream students are more extraverted than arts stream students. Additionally, traits such as neuroticism and agreeableness have a significant impact on students' academic achievement.

Keywords: Big Five Personality Traits, Academic Achievement, Post-graduate Students, Gender, Stream

Academic achievement can be defined as the foundational stage for future career and education of any individual. Excelling in academic sphere can lead to advanced educational opportunities, scholarships, and attractive career prospect. However, to figure out what affects students' academic achievement is complicated. A multitude of interconnected elements impact academic success, varying based on school environments, social contexts, and individual characteristics. Academic achievement shows how well a person has met the goals set in educational settings, such as schools, colleges, and universities. Numerous factors influence a student's academic success. Self-management skills affect self-efficacy, which significantly influences students' academic achievement (Al-Abyadh & Azeem, 2022). Teaching styles and parenting approaches, particularly those of mothers (Alrajhi & Aldhafri, 2024); students' socio-economic status, especially in urban areas; parents' expectations for high-quality education; improved educational opportunities; parenting behavior; and educational supports, learning habits that in turn impacts students' academic performance (Li & Qiu, 2018).

Personality appears to have a significant connection with academic achievement. Personality is often described as a combination of an individual's emotions, thoughts, and behavioral tendencies. The Big Five personality traits offer a widely recognized framework for comprehending primary dimensions of human personality. This model outlines five broad categories that encompass key aspects of individual personality differences. Widely researched, the Big Five model is regarded as one of the most reliable and valid measures of personality. It offers a thorough framework

for understanding how personality influences behavior, relationships, and mental health. The five traits in this model are Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Many studies over the years have shown the link between the Big Five personality traits and academic achievement. In the previous studies, a notable correlation between personality with academic performance has been observed (Seman & Ismail, 2019; Purushothaman & Senthilkumaran, 2023). However, another study suggests a negligible positive association between students' academic achievement and personality (Suvarna & Bhata, n.d.). Specifically, personality traits such as Openness, Conscientiousness, and Neuroticism significantly impact students' academic performance, whereas Extraversion and Agreeableness do not have a significant effect (Gandhi, Chhajer & Mehta, 2018). As per one study, extraversion, conscientiousness, and openness were linked to greater academic success, while neuroticism and agreeableness were associated with lower academic achievement (Xhomara & Shkembi, 2023). Another study found that self-regulated learning strategies like critical thinking and effort regulation, as well as personality traits such as conscientiousness, extraversion, and neuroticism, significantly influence academic achievement (Rosito, 2018). Additionally, conscientiousness was the sole personality trait positively associated with academic performance (Sweeney, 2023). According to Wang, et.al. (2023), both extraversion and conscientiousness positively influence students' academic achievements, while openness can impact academic performance through the mediating effect of self-efficacy. Overall, agreeableness has a negative impact on academic achievement. Additionally, Althof (2010) discovered significant relationships between conscientiousness, conscientiousness/self-

discipline, academic maturity, and academic performance. According to Tus (2019), personality traits were not found to have a significant influence on students' academic achievement. John et al. (2020) discovered that openness had the most robust positive connection with academic performance, followed by agreeableness and conscientiousness. However, they did not find significant correlations between academic performance and neuroticism or extraversion. Conversely, Britwum, et al. (2022) found that students' academic achievement was not predicted by extraversion, agreeableness, conscientious-ness or neuroticism. Only being open to new experiences was identified as a predictor of academic success.

Additionally, the current study also considers associations with other variables such as gender and academic stream. According to Fruyt & Mervielde (1996), personality traits are valid predictors of educational streaming. Again, the association between the Big Five personality traits and children's academic success may also vary depending on gender (Nikel, 2022). Extraversion is linked to academic achievement in females, while traits like openness, agreeableness, and conscien-tiousness are predictors of academic success in males (Hafiz, 2016). The objective of the study is to analyze if any relationship exists between Big Five Personality Traits (BFPTs) and students' academic achievement of Post-Graduate level. Additionally, the study aims to investigate differences in BFPTs between male and female students, as well as between students in the arts and science stream.

Objectives

1. To find out the level of Big Five Personality Traits (BFPTs) of the Post graduate students.

2. To investigate the differences in Big Five Personality Traits (BFPTs) among

postgraduate students based on their academic stream and gender.

3. To find out the level of Academic Achievement among Post graduate students

4. To explore the relationship of Big Five Personality Traits (BFPTs) and academic achievement in postgraduate students.

Hypotheses

H_{01}: There exists no significant difference in Big Five Personality Traits (BFPTs) of the Post graduate students with regard to Stream.

H_{02}: There exists no significant difference in Big Five Personality Traits (BFPTs) of the Post graduate students with regard to Gender.

H_{03}: There exists no significant relationship between Big Five Personality Traits (BFPTs) and Academic Achievement of Post graduate students.

Method

Sample

The current study involves 400 postgraduate students from Gauhati University in Assam, equally divided between 200 male and 200 female participants. Additionally, the sample includes an equal distribution of students from different academic disciplines, with 200 students from the Arts stream and 200 from the Science stream.

Tools

For the collection of data, following tools were used:

- Big Five Personality Inventory (2020) by Prof. K.S. Misra.

- End Semester results of the respective participants in the study.

Ethical concerns

The researcher received approval from the heads of each department before collecting data from the students within those departments. Data collection involved students who voluntarily participated and provided their consent. Additionally, students were assured that their data and information would be kept confidential and secure. The students' information and data are used for research purpose only.

Results

Table 1. Level of Big Five Personality Traits among Post graduate students

Category	Frequency & Percentage				
	Conscientiousness	Openness to experience	Neuroticism	Agreeableness	Extraversion
Extremely High	0	0	97(24.3%)	10 (2.5%)	0
High	50 (12.5%)	10 (2.5%)	86 (21.5%)	46 (11.5%)	21 (5.3%)
Above Average	64 (16%)	64 (16%)	85 (21.3%)	50 (12.5%)	29 (7.2%)
Average	207 (51.7%)	161 (40.3%)	78 (19.5%)	92 (23%)	152 (38%)
Below Average	28 (7%)	53 (13.3%)	48 (12%)	53 (13.3%)	79 (19.8%)
Low	49 (12.3%)	58 (14.5%)	6 (1.5%)	55 (13.8%)	54 (13.5%)
Extremely Low	2 (5%)	54 (13.5%)	0	94 (23.5%)	65 (16.3%)
Total	100%				

According to the table, majority of students are at an average level in conscientiousness (51.7%), openness to experience (40.3%), and extraversion (24.3%) according to the Big Five Personality Traits (BFPTs). However, in the other two dimensions, most students fall under extremely high neuroticism (24.3%) and extremely low agreeableness (23.5%).

Table 2. Gender differences in BFPTs of post-graduate students

Variable	Gender	N	Mean	SD	t-value
Conscientiousness	Male	200	36.37	7.259	1.004[NS]
	Female	200	35.67	6.679	
Openness to experience	Male	200	31.10	8.938	.506[NS]
	Female	200	31.55	9.038	
Neuroticism	Male	200	29.66	9.160	1.84[NS]
	Female	200	27.99	8.972	
Agreeableness	Male	200	28.37	10.15	.416[NS]
	Female	200	27.96	9.543	
Extraversion	Male	200	30.18	8.995	.785[NS]
	Female	200	30.88	8.706	

S= Significant, NS= Not Significant

The above table shows the description of Mean, SD and t-value in various dimensions of BFPTs such as- Conscientiousness, Openness to Experience, Neuroticism, Agreeableness and Extraversion in terms of the gender of students. The result shows that the t-value of all the dimensions of BFPTs are not statistically significant at 0.05 level of significance, and hence null hypothesis H_{01} is accepted.

Table 3. Stream wise difference in BFPTs of post-graduate students

Variable	Stream	N	Mean	SD	t-value
Conscientiousness	Arts	200	35.67	7.716	.989[NS]
	Science	200	36.37	6.146	
Openness to experience	Arts	200	30.68	8.740	1.433[NS]
	Science	200	31.97	9.191	
Neuroticism	Arts	200	29.57	7.970	1.647[NS]
	Science	200	28.08	10.05	
Agreeableness	Arts	200	29.44	9.749	2.610[NS]
	Science	200	26.89	9.792	
Extraversion	Arts	200	28.46	8.733	4.801[S]
	Science	200	32.60	8.491	

S= Significant, NS= Not Significant

The above table shows the description of Mean, SD and t-value in various dimensions of BFPTs such as- Conscientiousness, Openness to Experience, Neuroticism, Agreeableness and Extraversion in terms of the stream of students. It can be observed from the table that with regards to stream, the t-value that except Extraversion, all the other four dimensions of BFPTs such as- Openness to Experience, Agreeableness Conscientiousness and Neuroticism are not statistically significant. Only extraversion personality trait is found to be significant at 0.05 level of significance.

Table 4. Levels of Academic Achievement among Post graduate students.

Category	Range of Percentage	Frequency	Percentage
Outstanding	90-100	0	0
Excellent	80-89	32	8%
Above Average	70-79	95	23.8%
Average	60-69	85	21.3%
Very Good	50-59	49	12.3%
Good	40-49	72	18%
Pass	30-39	41	10.3%
Back	38 and below	26	6.5%
Total		400	100%

The above table depicts the different levels of academic achievement among post graduate students. The categories in the table are depicted as per the official format of the university results which is available in the mark sheets of students. In the table it can be seen that maximum students (23.8%) falls under above average level of academic achievement, followed by average level (21.3%), then good level (18%), then very good level (12.3%), then pass level (10.3%), then excellent (8%) and back (6.5%).

Table 5. Correlation between BFPTs and Academic Achievement of Post-Graduate students

Variables	Pearson 'r' value	N	Level of Significance	Re-marks
Conscientiousness Academic Achievement	.028*	400	0.05	NS
Openness to experience Academic Achievement	.061	400	0.05	NS
Neuroticism Academic Achievement	-.149	400	0.05	S
Agreeableness Academic Achievement	-.107*	400	0.05	S
Extraversion Academic Achievement	.017	400	0.05	NS

S= Significant, NS= Not Significant

From the above table it can be observed that, the calculated co-efficient of correlation values of Conscientiousness, Openness to Experience, Neuroticism, Agreeableness and Extraversion with that of academic Achievement of Post-Graduate students is r = .028, .061, -.149, -.107 and .017 respectively. The table also shows that Neuroticism and Agreeableness are negative but significantly correlated with Academic Achievement of students at 0.05 level. It means that students with high Neuroticism and agreeableness have low academic achievement.

Discussion

The result from the current study revealed that most students exhibit average levels of conscientiousness, openness to experience, and extraversion, while also being highly neurotic and low in agreeableness. According to the study, no significant variation has been observed when analysis regarding gender variation has been done. Gender-wise, there is no difference between the boys and girls in their BFPTs, as the current study has shown. The result of the study is in line with previous studies such as Hussin, Asmui & Zaki's study of 2015, which stated no difference has been found with regards to gender in personality traits of students and that females performed better academically in comparison to male. Another study also supports the same such as Britwum, et.al.'s study of 2022 and Hakimi, Hejazi & Lavasani's study of 2011. Educational streaming and the decisions students make are shaped not just by their intelligence and external pressures from parents, peers, and teachers, but also significantly by individual variations in personality. In the current study, no difference has been found in Conscientiousness, Openness to Experience, Agreeableness and Neuroticism personality traits of students due to their stream of education. Only in extraversion personality trait a significant difference has been found. The mean value of science stream students is higher than arts stream students, which means that science stream students are more extraverted than arts stream students. People high in extraversion personality trait are outgoing, spontaneous, talkative, energetic, action-oriented, and optimistic. So, from the current study also, it can be concluded that there is a difference in extraversion personality traits of students in relation to their stream of education. And,

science stream students are high in extraversion personality trait, it can also be said that science stream students exhibit outgoing, spontaneous, talkative, energetic, action-oriented, optimistic characteristics.

In the process of investigating the levels of Academic Achievement among students, it was discovered that a significant proportion of these students achieve higher than the other students, reflecting their strong academic capabilities and success in their studies. Therefore, it can be generalized that the majority of post-graduate students exhibit above average academic achievement. According to the findings of the current study, the relationship of Academic Achievement with Neuroticism and also Agreeableness are negative but significantly correlated with each other. It means that students with high neuroticism and agreeableness have low academic achievement. It is in line with other study too (Xhomara & Shkembi, 2023). Neuroticism is a personality trait characterized by emotional instability, irritability, anxiety, self-doubt, depression, and various other negative emotions. Conversely, Agreeableness is a characteristic that reflects an individual's inclination to prioritize the needs of others over their own, display empathy, and find fulfillment in aiding others and working together with those who may need extra support. Neuroticism and agreeableness are two distinct traits that contrast with each other in opposite ways. But they have impacted negatively in students' academic achievement. Since neuroticism is linked to negative characteristics, it is likely that these traits contribute to lower academic performance among students. In contrast, because agreeableness is associated with empathy and a sympathetic nature, it is possible that highly agreeable students may engage in other activities excessively, thus neglecting their studies, which results in lower academic achievement.

Implications

The research holds significance for the field of education, suggesting that administrators, stakeholders, and course developers can design curriculum structures to facilitate the development of positive personality traits. Taking into account the study's findings that show the impact of personality traits on academic achievement it can be said that teachers or the people involved in educational sector could organize activities aimed at fostering favorable personality traits among students. Moreover, the study highlights the importance of assessing individual differences in educational placement and providing counseling services for students.

Conclusions

The study shows that most students are moderately conscientious, open to experience, and extraverted, while being highly neurotic and low in agreeableness. According to the study, most of the students are average in conscientiousness, open to experience and Extraversion, high in neuroticism and low in Agreeableness traits. The current study has highlighted some of the traits of personality which are responsible for bringing variation in academic achievement of students. Though, most of the students are at above average level of academic achievement, it is evident from the study that traits like neuroticism and agreeableness has a great impact on achievement of students. Neuroticism and agreeableness have influenced negatively on academic achievement of students and hence those students who are high in neuroticism and agreeableness are low in academic achievement. It was also evident from the study that gender has no impact on differences in personality trait of students, but stream of education differs according to the personality traits of students. Science stream students were more extraverted than

arts stream students. The findings of the present study pave the way for further studies as present study was limited to post-graduate students only and that too of one university only. So, further study may be conducted on different levels of education too or by including students of multiple universities, and also from different academic levels such as- primary and secondary levels. Further, it will also be interesting to investigate in future studies, why certain personality traits are strongly linked to students' academic achievement.

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