

PERSONALITY TRAITS AND ACADEMIC SELF-EFFICACY AMONG UNDERGRADUATE STUDENTS

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Abstract: Human beings differ widely in how they think, feel, and act. These individual differences are influenced by various factors such as race, social status, educational background, culture, and family upbringing. Beyond these external influences, psychological researchers have long emphasized that one's personality- the relatively enduring patterns of thoughts, emotions, and behaviors- plays a central role in shaping human life outcomes. As Schultz and Schultz (2013) argue, personality often supersedes other determinants of behavior, influencing achievement, interpersonal relationships, and overall well-being. Indeed, personality is a vital psychological asset that affects not only how individuals perceive and interact with their environment but also their success and satisfaction in life. The term personality derives from the Latin persona, meaning "mask," originally referring to the social face or role an individual presents to others. Modern psychology defines personality as the dynamic organization within the individual of psychophysical systems that determine characteristic behavior and thought (Schultz & Schultz, 2013). Myers (2010) describes it as "a person's characteristic pattern of thinking, feeling, and acting" (p. 553). Over time, numerous theories have been proposed to explain how personality develops and operates.

INTRODUCTION

Classical theorists such as Sigmund Freud viewed personality as shaped by unconscious drives and early childhood experiences (Myers, 2010). In contrast, Erik Erikson's psychosocial model emphasized social and cultural influences across eight stages of life (Schultz & Schultz, 2013). Alfred Adler proposed that personality develops from an individual's efforts to overcome feelings of inferiority, while Carl Jung emphasized lifelong development and the importance of achieving balance between conscious and unconscious processes. Later, Lawrence Kohlberg's moral development theory linked personality growth to cognitive and moral reasoning processes.

Contemporary research, however, has largely focused on trait theory, which conceptualizes personality as a set of measurable and stable characteristics. Gordon Allport and Raymond Cattell laid the groundwork for this approach, which was further refined by McCrae and Costa's Five-Factor Model (FFM)—also known as the "Big Five." The five broad traits - openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism- are regarded as the most empirically supported dimensions of personality (John & Srivastava, 1999; McCrae & Costa, 2008). The FFM has been shown to be cross-culturally robust and predictive of numerous outcomes, including academic achievement and psychological well-being (Anglim et al., 2020; Soto, 2019).

In educational contexts, academic performance remains a critical indicator of student success. Beyond cognitive ability, non-cognitive traits such as personality and academic self-efficacy have emerged as key predictors of academic achievement (Hayfron, 2016; Komarraju & Nadler, 2013). Self-efficacy, as conceptualized by Albert Bandura (1994), refers to an individual's belief in their capability to execute actions required to achieve specific goals. High self-efficacy influences how individuals approach challenges, persevere through obstacles, and manage stress. Students with strong academic self-efficacy are more likely to engage deeply with their studies, use effective learning strategies, and achieve higher grades (Honicke & Broadbent, 2016; Putwain et al., 2021). Conversely, those with low self-efficacy often avoid difficult tasks and experience reduced motivation and performance.

Given these theoretical and empirical foundations, understanding how personality traits and self-efficacy interact to influence academic performance is essential for developing effective educational interventions. Research in sub-Saharan Africa, including Ghana, has begun to explore these relationships, but findings remain limited and context-specific (Boateng & Kusi, 2022). Therefore, the present study aims to examine the relationship between personality traits and academic self-efficacy among university students in Ghana, and to explore possible gender differences in personality dimensions.

LITERATURE REVIEW

Academic achievement: a multifaceted outcome Academic achievement remains a central concern in educational research because it indexes the degree to which students attain cognitive and performance goals across domains (O'Connor & Paunonen, 2007). Although traditional perspectives emphasized cognitive ability (e.g., IQ) as the primary predictor of grades, contemporary work recognizes achievement as a multifaceted outcome influenced by cognitive, motivational, and dispositional factors (Deary et al., 2007; Richardson, Abraham, & Bond, 2012). Recent syntheses show that personality and self-regulatory behaviors (e.g., goal-setting, time management) add incremental predictive power beyond cognitive ability and explain important variance in grades and retention (Almulhim et al., 2021; Poropat, 2009). In short, contemporary models treat academic success as the product of interacting cognitive, affective, and behavioral systems rather than the result of intelligence alone.

The Big Five personality model and academic outcomes

The Five-Factor Model (FFM)—extraversion, neuroticism (emotional stability), openness to experience, agreeableness, and conscientiousness—provides a robust taxonomy for relating dispositional traits to learning and achievement (Costa & McCrae, 1992; John & Srivastava, 1999). Across large-scale and meta-analytic studies, conscientiousness consistently emerges as the strongest and most reliable predictor of academic performance (Poropat, 2009; Almulhim et al., 2021). Conscientious students are more likely to persist, organize study time, and use effective study strategies—behaviors that translate into higher grades (Komarraju & Karau, 2005; Lounsbury et al., 2003).

Other FFM dimensions show more context-dependent effects. Openness tends to relate positively to achievement in domains valuing conceptual complexity and creativity (e.g., humanities, advanced coursework), and its association may be stronger earlier in schooling or in tasks requiring intellectual curiosity (Bidjerano & Dai, 2007; Rodrigues, Rose, & Hewig, 2024). Extraversion can be beneficial in collaborative or oral-performance contexts but is often weaker or neutral as a predictor of traditional, solitary assessments. Agreeableness typically has small indirect effects—through cooperative behaviours and supportive peer interactions—while neuroticism often undermines performance via anxiety and poor stress coping (Chamorro-Premuzic & Furnham, 2003; Bartels, Magun-Jackson, & Kemp, 2019).

Recent large-sample syntheses confirm the relative magnitudes of these associations: personality and cognitive ability together account for a substantial share of variance in academic outcomes, with conscientiousness carrying a disproportionate share of the personality-related effect (Almulhim et al., 2021; Poropat, 2009).

Self-efficacy: mechanisms and educational relevance

Bandura's concept of self-efficacy—belief in one's capacity to perform tasks and attain desired outcomes—has been validated as a powerful motivational construct in education (Bandura, 1997, 2001). Self-efficacy influences choice of tasks, persistence, effort mobilization, and resilience in the face of setbacks (Schunk, 1995; Zimmerman, Bandura, & Martinez-Pons, 1992). Empirical work and meta-analyses show that academic self-efficacy predicts achievement even when controlling for prior performance and cognitive ability (Huang et al., 2018; Zuffianò et al., 2013). Sources of efficacy—mastery experiences, vicarious experiences, verbal persuasion, and physiological states—are also the targets of pedagogical interventions (Bandura, 1977; Schunk, 1995).

Recent studies emphasize that self-efficacy is task- and domain-specific: confidence in writing, mathematics, or laboratory skills more precisely predicts performance in those domains than general academic self-esteem (Di Giunta et al., 2013). This specificity makes self-efficacy a practical lever for instructional design (e.g., scaffolded mastery tasks, formative feedback) that enhances both motivation and measurable learning outcomes (Aleven et al., 2016; Nye, 2015).

Personality, self-efficacy, achievement: mediation models

Contemporary models propose that personality influences achievement partly by shaping self-regulatory strategies and efficacy beliefs (Huang et al., 2018; Komarraju & Karau, 2005). For example, conscientiousness fosters disciplined study habits and reliable performance experiences (mastery), which raise efficacy expectations and thus performance. Conversely, high neuroticism increases worry and physiological arousal that can lower efficacy and impair performance. Meta-analytic path analyses support self-efficacy as a mediator linking conscientiousness and emotional stability to academic outcomes (Huang et al., 2018). Recent empirical work also highlights bidirectional dynamics—success bolsters efficacy, which in turn encourages adaptive behaviors, creating positive feedback loops (Zuffianò et al., 2013).

Complementary constructs: grit, self-regulation, and emotional intelligence

Parallel constructs—grit (perseverance and consistency of interest), self-regulation, and emotional intelligence—contribute additional explanatory power. Duckworth et al. (2007) showed that grit predicts long-term academic attainment, although much of grit's effect overlaps with conscientiousness. Self-regulated learning strategies (metacognition, time management) are robust proximal predictors of achievement and are often the behavioral pathways by which personality and self-efficacy operate (Locke & Latham, 2002; Chen, 2002). Emotional intelligence has modest but meaningful links to academic adjustment and socio-emotional competence in school (MacCann et al., 2020).

Ghanaian and regional evidence: contextualizing dispositional predictors

Research in Ghana and comparable Sub-Saharan settings indicates that personality and self-efficacy are meaningful correlates of educational aspirations and outcomes, though contextual constraints (infrastructure, pedagogy, language of instruction) moderate effects (Ansong et al., 2019; Appiah Twumasi, 2024; Aboagye et al., 2023). For example, studies in Ghana have found that higher self-efficacy associates with stronger academic aspirations and better study behaviours among adolescents (Ansong et al., 2019), while university-level work shows personality contributing to academic performance, with context-specific variations in effect sizes (Appiah Twumasi, 2024). Structural barriers—limited resources, large class sizes, and inconsistent digital access—can attenuate the translation of favorable dispositions into achievement unless supported by institutional practices (Adarkwah, 2021; Aboagye et al., 2023).

Gaps and rationale for the present study

Although the links among personality, self-efficacy, and achievement are well documented, several gaps remain. First, much of the evidence derives from Western settings; there is a need for replication in African higher-education contexts where cultural norms, classroom practices, and resource constraints differ. Second, longitudinal and mediation tests remain relatively scarce in sub-Saharan samples, limiting causal inference about whether personality shapes achievement directly or through efficacy and self-regulation. Third, there is growing interest in how new digital learning environments (e.g., AI-supported platforms) interact with dispositional factors to influence self-efficacy and performance (Kasneji et al., 2023; Zhai et al., 2023). Addressing these gaps, the present study examines the relationship between Big Five traits and academic self-efficacy in a Ghanaian undergraduate sample, testing whether trait-efficacy associations align with findings in other cultural contexts and identifying implications for pedagogical interventions.

Statement of the Problem

University students often attribute poor academic performance to external factors—such as lecturers’ teaching styles, rigid marking schemes, course overload, and limited exam preparation time. Internally, many blame low intelligence quotient (IQ), yet other personal factors receive far less attention. Specifically, personality traits which is rooted in the Big Five model may play a significant role in shaping one’s belief in their ability (self-efficacy) to achieve academic goals. This study explores the relationship between undergraduate students’ personality traits and their academic self-efficacy at the University of Ghana. The research objectives were:

1. To identify the dominant personality traits among University of Ghana undergraduates.
2. To examine how these personality traits relate to students’ academic self-efficacy.

Aim of the Study

The aim of the study was to find the relationship that exists between the personality traits of University of Ghana students and their academic self-efficacy. The following hypothesis stated below was tested.

Ho: There is no significant relationship between the personality traits (extraversion, neuroticism, openness to experiences, agreeableness and conscientiousness) of students and their academic self- efficacy.

METHODS

Participants and Procedure

Participants were drawn from a large public university located in Accra, Ghana. The institution was purposively selected to ensure demographic and academic diversity across the sample, encompassing students from various academic disciplines and socio-cultural backgrounds. This approach was intended to maximize representativeness and variability within the study population.

A total of 300 undergraduate students participated in the study, comprising 126 males and 74 females. Sociodemographic data collected included age, gender, marital status, and field of study (see Table 1). Ethical clearance for the study was obtained from the School of Agriculture, University of Ghana, as the research involved human participants. Participants were informed about the purpose and procedures of the study, assured of confidentiality and anonymity, and provided informed consent prior to data collection.

To ensure sampling fairness, eight of the thirteen student halls of residence were selected through a ballot method. Within these halls, rooms were randomly assigned numbers, and participants were randomly selected from those rooms. Contact information and room numbers were recorded solely to facilitate questionnaire retrieval.

Study Design

A cross-sectional survey design was employed, allowing for the collection of data at a single point in time. This design was appropriate for examining the relationships between personality traits, self-efficacy, and academic outcomes among university students.

Instrumentation and Data Collection

Data were collected using a structured self-administered questionnaire developed in simple English to ensure clarity and accessibility. The instrument comprised three sections:

- Section A: Captured demographic characteristics, including age, gender, academic level, and hall of residence.

- Section B: Assessed personality traits using the Big Five Inventory (BFI), which measures five personality dimensions—openness, conscientiousness, extraversion, agreeableness, and neuroticism. Sample items included “I am talkative,” “I do a thorough job,” “I get depressed easily,” and “I come up with new ideas.” Responses were rated on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).
- Section C: Measured academic self-efficacy based on Bandura’s (1997) theoretical framework. Sample items included “How well do you succeed in finishing all your homework every day?” and “How well can you study a chapter for a test?”

Prior to the main data collection, the questionnaire was pre-tested with ten students from a hall possessing similar demographic characteristics to the target population. Feedback from the pre-test led to minor modifications in wording to enhance clarity and comprehension.

Data Analysis

All data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 22. Descriptive statistics (frequencies, means, and standard deviations) were used to summarize the demographic characteristics of participants. Inferential statistics were then applied to explore relationships among the variables. Specifically, Pearson’s correlation coefficient was employed to test the stated hypotheses regarding the associations between personality traits, academic self-efficacy, and gender. Independent samples t-tests were also conducted to examine gender differences in the Basic Personality Inventory (BPI) scales. Results are presented in Tables 1 and 2.

RESULTS

This section presents the findings based on the specific objectives of the study.

Demographic Characteristics of Respondents

Table 1 presents the demographic characteristics of the respondents. Out of the 300 participants, 152 (50.7%) were males and 148 (49.3%) were females. The majority (55.3%) were aged between 16 and 20 years, followed by 43.7% aged 21–25 years, and only 1% aged 26–30 years. Regarding the hall of residence, the highest proportion of respondents (15%) were from Hall A, while the least (8.7%) were from Hall B. In terms of educational level, 36.3% were at Level 100, 33.3% at Level 400, 17% at Level 300, and 13.3% at Level 200.

Table 1. Demographic Characteristics of Respondents (N = 300)

Variables	Frequency	Percentage (%)
Age Groups		
16–20	166	55.33
21–25	131	43.67
26–30	3	1.00
Sex		
Male	152	50.67
Female	148	49.33
Halls of Residence		
Hall A	45	15.00
Hall B	26	8.67
Hall C	43	14.33
Hall D	38	12.67
Hall E	42	14.00
Hall F	35	11.67
Hall G	40	13.33
Hall H	31	10.33

Variables	Frequency	Percentage (%)
Educational Level		
Level 100	109	36.33
Level 200	40	13.33
Level 300	51	17.00
Level 400	100	33.33

The majority of participants (55.3%) were aged between 16 and 20 years, with most being Level 100 students. Male and female representation was nearly equal.

Dominant Personality Traits

Figure 1 shows that the majority of participants (34.7%) exhibited Agreeableness as their dominant personality trait. The least reported trait was Neuroticism (8.3%).

Figure 2 illustrates the distribution of dominant personality traits by gender. Females were found to be more Extraverted (54.3%), Conscientious (52.6%), and Neurotic (52%) than their male counterparts. Conversely, males were slightly higher in Openness to Experience (51.7%) and Agreeableness (54.8%).

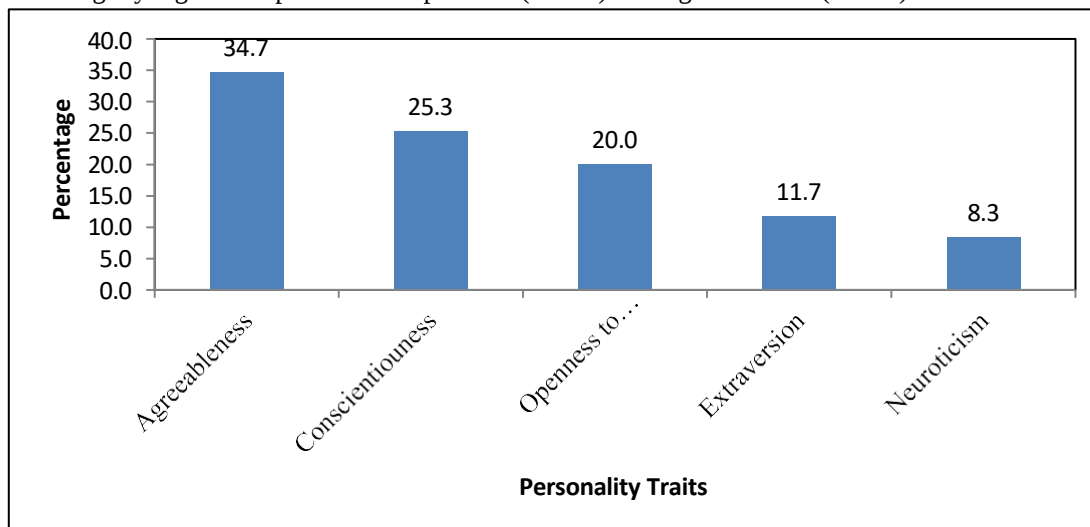


Figure 1: Personality Traits of Participants

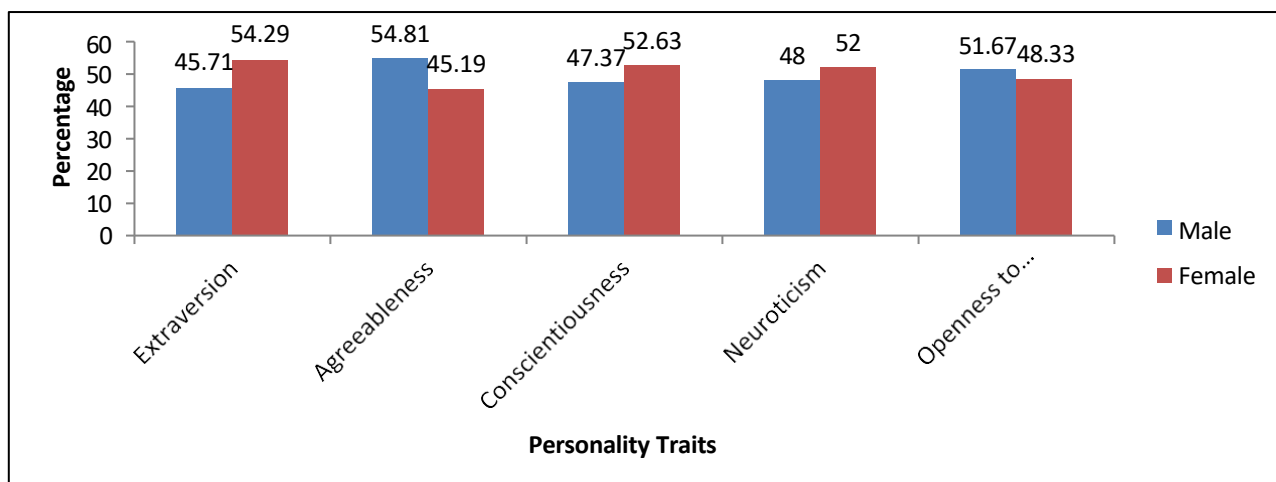


Figure 2: Dominant Personality Traits among Gender

Personality Traits and Age Groups

Table 2 presents the distribution of personality traits by age group. Respondents aged 16–20 years showed the highest Extraversion (13.86%), while those aged 21–25 years were more Conscientious (29.77%) and Agreeable (35.11%) than their younger counterparts. Participants aged 26–30 years exhibited higher Openness to Experience and Neuroticism (33.33% each).

Table 2. Personality Traits by Age Group (N = 300)

Personality Traits	16–20	21–25	26–30	Total (%)
Extraversion	23 (13.86)	12 (9.16)	0 (0.00)	35 (11.67)
Agreeableness	57 (34.34)	46 (35.11)	1 (33.33)	104 (34.67)
Conscientiousness	37 (22.29)	39 (29.77)	0 (0.00)	76 (25.33)
Neuroticism	17 (10.24)	7 (5.34)	1 (33.33)	25 (8.33)
Openness to Experience	32 (19.28)	27 (20.61)	1 (33.33)	60 (20.00)

Academic Self-Efficacy of Participants

As shown in Figure 3, a majority (85%) of the respondents demonstrated high academic self-efficacy, while 15% reported low academic self-efficacy.

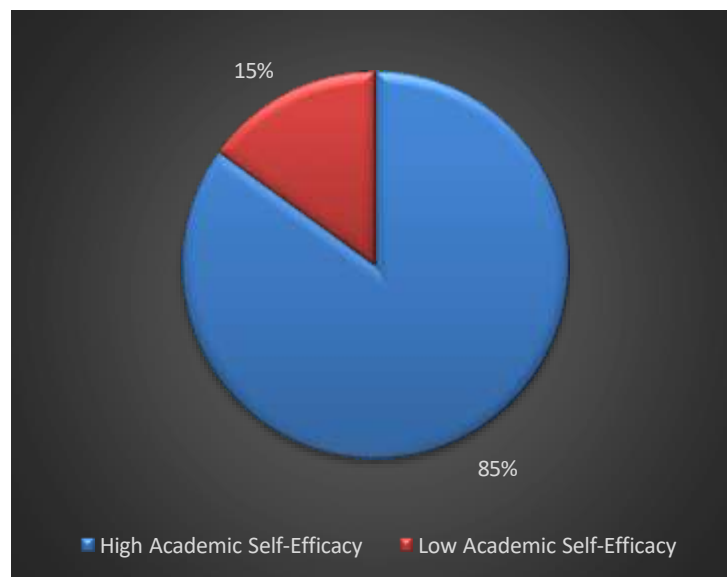


Figure 3: Respondents' Self-Efficacy

Table 3 further shows gender differences in academic self-efficacy. Female students recorded slightly higher proportions of both high (85.14%) and low (14.86%) self-efficacy compared to males (84.87% and 15.13%, respectively).

Table 3. Academic Self-Efficacy by Gender (N = 300)

Academic Self-Efficacy	Male (%)	Female (%)	Total (%)
High	129 (84.87)	126 (85.14)	255 (85.00)
Low	23 (15.13)	22 (14.86)	45 (15.00)

Relationship between Personality Traits and Academic Self-Efficacy

Table 4. Pearson Correlation Matrix of Personality Traits and Academic Self-Efficacy (N = 300)

Variables	Pearson's r	p-value
Overall Personality Traits	0.0528	0.3619
Extraversion	0.0218	0.7068
Agreeableness	-0.0118	0.8391
Conscientiousness	-0.1588	0.0058*
Neuroticism	0.2111	0.0002*
Openness to Experience	0.0233	0.6872

* $p < .05$ (2-tailed)

Table 4 presents the Pearson correlation results between the Big Five personality traits and academic self-efficacy (ASE). The overall correlation between personality and ASE was positive but weak ($r = 0.0528$, $p = 0.3619$), indicating a minimal relationship.

The follow-up analysis revealed that:

- Conscientiousness was negatively correlated with academic self-efficacy ($r = -0.1588$, $p = 0.0058$), suggesting that higher conscientiousness was associated with lower ASE.
- Neuroticism had a weak positive correlation with ASE ($r = 0.2111$, $p = 0.0002$), indicating that more emotionally unstable students perceived slightly higher self-efficacy.
- Extraversion, Agreeableness, and Openness showed no significant relationships with ASE.

DISCUSSION

The first objective which was to determine the dominant personality traits among students showed from the results that all five personality traits propounded by McCrae and Costa big five personality traits were exhibited by the sample size. 34.67% of students exhibited agreeableness as their dominant personality trait, which is characterized by forgiving, not demanding, warm, modest and sympathetic. 25.33% of the sample size exhibited conscientiousness as their dominant personality trait and are therefore related to characteristics such as efficient, organized, not careless, thorough, self-discipline and not impulsive. 20% of the sample size exhibited openness to experience as their dominant personality trait and thereby are likely to be seen as people who are curious, imaginative, artistic, have a wide range of interest and excitable. 11.67% of the sample size exhibited extraversion as their dominant personality trait, which is characterized by sociable, forceful, energetic, outgoing, enthusiastic and adventurous. 8.33% of the sample size exhibited neuroticism as their dominant personality trait, which is characterized by shyness, moody, not self-confident, anxious, and irritable. The results also showed some interesting information pertaining to the comparison of both gender and age groups to personality. With respect to gender and personality traits and gender it was found out that females are higher than males in extraversion as asserted by Feingold (1994) and Schmitt et al (2008). This means that more females are outgoing, enthusiastic and adventurous than men. Contrary to previous research conducted by McCrae (2001) and Magan et al (2014) that females are reported to be higher in agreeableness than males our research findings shows that males are rather higher in agreeableness than females. A possible cause of this discrepancy could be cultural differences in the population study. The results also show that females are higher in conscientiousness than males of which Schmitt et al (2008) and (Magan) asserted same. According to Terraciano et al (2001) females reported themselves to be higher in neuroticism of which our results reported same. McCrae et al(2001) females reported themselves to be higher in openness to feelings whereas males were higher to openness to ideas. However, from the findings males on a whole reported to be higher in openness to experience than females. The results pertaining to the comparison of personality among the age groups showed that personality traits remain dynamic throughout life. Conscientiousness increased with increasing age while neuroticism decreased with increasing age, with agreeableness reporting flat trends as ascertained by Magan (2014). Research has differing opinions about academic self-efficacy among gender. For instance, research conducted by Thwaites (2013) suggested that more female students have significantly greater academic self-efficacy than male peers which were inconsistent with Schunck & Pajares (2002)

who found male students often had higher self-efficacy beliefs than female students. This study however did not find any significant differences in academic self-efficacy among gender.

The second objective was to find the relationship that exists between various personality traits proposed by McRae and Costa and academic self-efficacy. The results showed that there was no relationship between extraversion and academic self-efficacy meaning that characteristics of forgiving, not demanding, warm & modest, will not determine whether a person will have low or high self-belief to perform well academically which is similar to what Chamorro-Premuzic and Furnham (2003) found that the relationship between extraversion and academic performance was insignificant. The same was seen with the personality traits of agreeableness and openness to experiences. However, the conscientiousness trait recorded a relationship with ASE meaning that students who were efficient, organized, not careless, thorough, self-disciplined and not impulsive will have self-belief to perform well academically. The negative results however mean that conscientiousness could also lead to low ASE. Embedded in this objective researchers sought to determine which personality trait(s) had a higher correlation with academic self-efficacy. The results showed neuroticism trait as having a statistically significant relationship and academic self-efficacy. The very weak positive correlation suggests that neuroticism is not a strong driver of academic self-efficacy in this sample and could reflect measurement limitations or cultural/contextual factors affecting the expression of neuroticism in academic settings. It is still worth exploring its guidance and counselling implications in the context of Higher Education.

Implications for Guidance and counselling in Higher Education

The connection between personality traits and academic self-efficacy has important implications for education. By recognizing individual personality profiles, educators and counselors can design personalized interventions to enhance students' self-efficacy. For instance, strategies that build emotional regulation may help students high in neuroticism, while goal setting and time management training may particularly benefit those low in conscientiousness.

Despite the weak effect size, the statistical significance suggests a reliable (though minimal) relationship in the population. The following suggestions are made to direct counselling and mental health support for students in higher education. Firstly, emotional sensitivity should not be ignored. While the correlation is weak, neuroticism is consistently associated with emotional instability, anxiety, and vulnerability to stress (Costa & McCrae, 1992). These characteristics can affect how students perceive and respond to academic challenges, potentially reducing their confidence and persistence (Judge et al., 2007). Therefore, students with higher neuroticism may benefit from early psychological support, even if their academic self-efficacy scores appear average.

Secondly, there could be a focus on emotional regulation & resilience training for student in tertiary institutions. Given that persons with neuroticism are more likely to experience negative affect and academic anxiety (Chamorro-Premuzic & Furnham, 2003), counseling services should include workshops on emotional regulation strategies, resilience building, and stress-reduction techniques such as mindfulness (Shankland & Rosset, 2017). Such interventions have been shown to improve both emotional well-being and self-efficacy among university students.

Also, early identification and targeted interventions are encouraged. Even a small predictive relationship can support risk profiling and early interventions. Using personality assessments to identify students high in neuroticism could allow counselors to proactively engage those at risk of academic disengagement or emotional burnout (Komarraju & Nadler, 2013). This is particularly relevant as students with high neuroticism may not voluntarily seek help due to fear of judgment or self-doubt.

Finally, personalized academic coaching and encouragement would be beneficial to most students and reduce anxieties even for students who may score high on conscientiousness.

Students high in neuroticism often benefit from structured and supportive academic environments. Personalized academic coaching, regular feedback, and emotional encouragement can help mitigate negative self-beliefs and reinforce academic competence (Caprara et al., 2011). These students may also need help with cognitive restructuring to challenge irrational academic fears or perfectionism.

CONCLUSION

The findings infer that poor academic performance cannot only be attributed to external factors including, lecturers' teaching style, rigid marking schemes, course overload and less time to prepare for exams. Internal factors like the type of personality trait students have link with the belief that they can achieve their academic goals. Therefore, it is very important to encourage students to consider their personality traits in order to understand how that impact their beliefs about succeeding in school and their general wellbeing. Recommendations are that further studies should consider using culturally relevant personality inventory to suit the cultural context on a large scale to get a greater representation of students.

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