

## PERCEIVED EFFECT OF PERSONALITY TRAITS ON INFORMATION LITERACY SKILLS AMONG COLLEGE OF EDUCATION STUDENTS

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### ABSTRACT

The study investigated the distribution of personality traits among college of education students in Ghana and how these traits impacted information literacy skills. The design for the study was a cross-sectional descriptive survey. The study sample comprised 370 purposively and randomly selected students from three colleges of education. The data was analyzed using descriptive (mean and standard deviation) and inferential (standard multiple regression) statistical techniques at  $p=0.01$ . The predominant trait among college students was agreeableness, while the least was openness to experience. The study found a statistically insignificant impact of personality traits such as agreeableness, conscientiousness, extraversion, and openness to experience on information literacy skills. However, there was a statistically significant impact of the neurotic trait on information literacy skills. The personality disposition and orientation of neurotic students fortified their quest to seek more information. The study suggests that tutors and allied staff in Colleges of Education should learn about their students' personality profiles to guide their general information-seeking skills, competencies and learning.

### 1.0 INTRODUCTION

Information and Communication Technologies (ICTs) have revolutionised every field of human endeavour, such as education, industry, health and agriculture (Saif et al., 2022; Mazhar, 2022; Barakabitze, 2019). Consequently, new teaching methods, resources and facilities for online teaching, learning and knowledge generation and sharing have become integral to all sectors and systems, including education, health and agriculture (Waltz et al., 2023; Ratheeswari, 2018; Ali, 2020). As a result, acquiring relevant Information Literacy skills to access, retrieve and utilise information to facilitate teaching and learning has become almost indispensable. This need has also necessitated developing and acquiring Information Literacy

skills and competencies to effectively function in diverse spheres of life (Mansour, 2017). Information Literacy is a set of skills, abilities, or behaviours individual's exhibit to seek information within digital environments (Peciuliauskiene et al., 2022; Adair et al., 2023).

For much of Information Literacy Instruction (ILI) within U.S. higher education, the primary definition of I.L. has been the Standards that describe the information-literate individual as successfully performing a set of skills (American Library Association [ALA], 2006). Similarly, the ALA and the Association of College and Research Libraries (ACRL) have stressed the importance of I.L. as a set of essential skills for society in general and particularly for students in higher education (Al-Azri et al., 2023; Waltz et al., 2023). Information literacy determines the extent of information needs, access, and efficient evaluation of information sources to accomplish a specific purpose (Weiner, 2014; Pinto et al., 2019; Putri et al., 2022). Haneefa and Shukkoor (2010) assert that digital literacy skills, which is subsumed in information literacy, is a complete set of systems which comprise different tools and designs to gather, store, process, and communicate information.

In this 21st century, the overriding importance of digital literacy reinforcing happy life, health, engineering social activities, unearthing knowledge, and expressing one's ideas cannot be overemphasised (Christopher, 2010; Zhong, 2011). It equips professionals, students, and academics to get more prepared for instant messaging, blogging, social networking and other digital activities (Emiri, 2017).

Empirical evidence suggests that the information literacy skills of individuals, particularly students, are contingent on several factors, including a person's personality disposition (Burford & Park, 2014; Catalano, 2013; Savolainen, 2017; Sirikul et al., 2016). Thus, the individual's personality and situational requirements largely account for access to information and the validity of the information sources (Lampropoulos et al., 2022). Personality is a crucial psychological mechanism guiding an individual's behaviour and has been explored to recognise users' thoughts, feelings and behaviours (Nahyun & Hana, 2017) and directly concerned with information-seeking behaviour (Ahmed, Rehman & Sheikh, 2019; Chang & Huang, 2020; Chang & Huang, 2020). Several authors have examined information-seeking behaviours and found that learners use different learning styles according to their personality traits (Halder et al., 2010; Hyldegard, 2009; Teh et al., 2011; Heinström, 2005; 2012). Predominantly, these personality traits are broadly classed into five factors, namely; 'openness', 'agreeableness', 'extraversion', 'conscientiousness' and 'neuroticism' (Babcock & Wilson, 2020; Smith, Hamplová, Kelley & Evans, 2021). These five factors are associated with information-searching tendencies contributing to higher work engagement (Mäkikangas et al., 2013). Despite the intense pursuit and drive to increase information competency and skills among students at all levels of education, not much is known about the psychological mechanisms that measure how these are facilitated or inhibited by their personality (Mäkikangas, Feldt, Kinnunen & Mauno, 2013). Moreover, most of the literature on this study area has relied on samples representing different populations from different countries (Müller et al., 2016; Gil de Zúñiga et al., 2017; Wang, 2017). In the Ghanaian context, our review showed no evidence of prior studies directly focusing on college students' personality traits and information literacy skills. This study, therefore, draws its justification to fill this void in knowledge generated from the study's context. Specifically, the study investigates the extent

students possess the five broad personality traits and how these traits influence their information literacy skills.

## **2.0 LITERATURE REVIEW**

### **2.1 Theoretical Review: The five-factor personality traits**

This study draws inferences from the five factors of personality traits theory spearheaded by Gordon Allport and Henry Od (Vinney, 2018). The five factors traits theory contends that personality traits, almost universally, consist of ‘openness’, ‘agreeableness’, ‘extraversion’, ‘conscientiousness’ and ‘neuroticism’ (Soto, 2018; Shiner, 2015). Possessing various degrees of these broader or big traits determines a person’s stable characteristics across different contexts, environments or situations.

### **2.2 Openness to experience**

Openness to experience refers to one’s willingness to try new things and engage in imaginative and intellectual activities. It includes the ability to “think outside of the box (John & Srivastava, 1999). People open to experience are generous, escalate innovation, and are associated with intellect, culture, education and creativity. Further, this trait is related to broad information seeking, information acquisition, information verdict and using efforts for information seeking (Kwon & Weed, 2007).

### **2.3 Conscientiousness**

Conscientiousness describes a person’s ability to regulate impulse control to engage in goal-directed behaviours (Grohol, 2019). It measures elements such as control, inhibition, and persistence of behaviour. It measures elements such as control, inhibition, and persistence of behaviour. Highly conscientious persons are organised, disciplined, detail-oriented, thoughtful, and careful. They also have good impulse control, which allows them to complete tasks and achieve goals, while less conscientious individuals may struggle with impulse control, leading to difficulty in completing tasks and fulfilling goals. Shrestha & Dangol (2020) explained that people who are identified to have high traits of conscientiousness remain focused, concentrate on the assigned goals and strive hard to achieve them. They are flexible and easily motivated to switch from one goal to another. Such people have achievement motivation and strive to succeed. Low or less conscientious persons tend to be more disorganised and may dislike too much structure. They may also engage in more impulsive and careless behaviours.

### **2.4 Extraversion**

According to John and Srivastava (1999), extraversion reflects the tendency and intensity to which someone seeks social interaction with their environment. It encompasses the comfort and assertiveness levels of people in social situations. The extroverts are active both verbally and physically. They search purposely for their needs and seek information with high passion. Studies conclude that extroverts exhibit high information-seeking behaviour as they are excellent in searching, using, sharing and exchanging information. Such people exhibit quick solutions and socialising qualities in their information-seeking techniques (Ahmed, Rehman & Sheikh, 2019). Persons who are low in extraversion (i.e. introverts) tend to be more reserved

and quieter. They prefer listening to others rather than being heard. Introverts desire solitude and find social events tiring.

## 2.5 Agreeableness

Agreeableness refers to how people tend to treat relationships with others. Unlike extraversion, which consists of pursuing relationships, agreeableness focuses on people's orientation and interactions with others (Ackerman, 2017). People with high agreeableness traits are characterised by selflessness, caring and offer emotive support to others. They are generally soft-hearted, trusting, well-liked, trustworthy and altruistic. They are motivated, use different techniques to search for information, and are optimistic about information seeking (Furnham, 2017). Those low in agreeableness may be perceived as suspicious, manipulative, and uncooperative. They may be antagonistic when interacting with others, making them less likely to be well-liked and trusted.

## 2.6 Neuroticism

Neuroticism describes the overall emotional stability of an individual through how they perceive the world. It considers how likely a person is to interpret events as threatening or difficult. Neurotics are concerned, erratic and sad. Studies suggest that people with high neuroticism are not motivated to seek information because of negative emotions (Kwon & Weed, 2007). Such people rely on a few familiar and easily accessible information sources and avoid trying new ones (Ahmed, Rehman & Sheikh, 2019). Neuroticism encompasses various negative dispositions, namely sadness, nervousness and worriedness. It also involves negative emotions like anger, anxiety, and depression, negatively influencing information-seeking behaviour. These negative emotions act as barriers to students' successful information-seeking. However, neuroticism, if not too high, is good for an individual's information-seeking behaviour since the negative mood state creates doubt and insecurity, forcing the individual to be armed with more information to not feel threatened.

## 2.7 Empirical Review

Various studies have substantiated the influence of personality traits on learners' information literacy skills (Lee et al., 2020). For instance, Ahmed et al. (2020) measured the relationship between personality traits and digital literacy skills. Their study used three clusters; conscientiousness, agreeableness and extraversion. Students with a high conscientiousness score performed fastest in most information-seeking tasks compared to agreeableness and extraversion traits. Sin et al. (2011) investigated the relationship between students' personality traits and the acculturation of online information-seeking habits and found strong connections. The study concluded that individuals with "openness to experience" traits used social sites more frequently than those without. Similarly, other studies (e.g., Komarraju et al., 2011; DeRue et al., 2012; Heinström, 2010) found a relationship between the openness to experience characteristic, other aspects comprising it (e.g., creativity) and information seeking. An open-minded person thirsts for knowledge, seeks to discover new perspectives, curious and loves to learn (Komarraju et al., 2011; DeRue et al., 2012; Heinström, 2010). Moreover, there is a higher likelihood that the individual comprehends the proper way to manage and implement information (Kwon & Song, 2011).

In another context, Tsai and Kim (2012) concluded that calm, open-minded extroverts and conscientious students frequently used human sources like professors and advisors more than all coursework processes. Shonfeld and Aharony (2015) also found that students more open to experience had higher attitudes and motivations towards information and communications technology (ICT) use and its greater actual use. Onwuegbuzie et al. (2014) revealed that extrovert students are more diverse and wider in their information search and use most of the resources available for seeking information. Students with high extroversion can be more critical in selecting the relevant documents from the bulk of information retrieved and would tend to go through it critically to select the authentic ones before using it. Ozowa and Aba (2017) noted that when an extrovert gets limited time to complete an assigned task, they get affected as they are very enthusiastic towards their work. While conscientiousness has no effect, openness to experience and extraversion have a favourable indirect effect on behavioural intention to use technology (Camadan et al., 2018). Similarly, both agreeableness and neuroticism negatively impact behavioural intention in the use of technology (Peng & Dutta, 2022)

Studies have shown that people with high “agreeableness” never hesitate to share their information, experiences and best practices. This trait significantly influences student information-seeking behaviour (Halder et al., 2010; Vo et al., 2023; Badreddine et al., 2023). They are more critical when choosing relevant information and more willing to seek information (Halder et al., 2010; Vo et al., 2023; Badreddine et al., 2023).

Conscientious students are found to be strong-willed, determined to achieve, have self-control, are persistent and willing to work hard. They are also active information seekers who pursue relevant information (Roy & Chakraborty, 2010; Islam et al., 2021; Sycz-Opon, 2021). They may even collect extra information for their goals, such as passing a test, to ensure they do not miss out on anything essential. They feel fewer obstacles when seeking information (Kwon & Song, 2011). Students with high levels of openness to experience tend to feel excited when they seek information (Heinstrom, 2014; Shonfeld, 2022; Lavoie & Main, 2022). They are intellectually curious, process-oriented and enjoy exploring texts that bring them ideas and insight (Gabay, 2022).

Moreover, they will likely evaluate retrieved information more critically before using it in their work. They prefer to retrieve a broad range of information rather than a few precisely. Thus, the creative and curious nature of students who are open to experience could make them feel panicky and disheartened when they have limited time to retrieve information. On the other hand, students with negative emotions or higher levels of neuroticism are often distracted and lack concentration (Lofti, Muktar, Ologbo & Chiemek, 2016). They may not have enough time to analyse and evaluate documents before retrieving and using them.

Prior studies suggest that the dominance or otherwise of personality traits possessed by students, directly and indirectly, dictated their information literacy skills. Previous research studies have focused on personality traits and their relationships with academic achievements, online learning, social media, information competency, internet addiction, evaluation of a good teacher and information-seeking behaviour (Ghazi et al., 2013; Geramian et al., 2012; Hakimi et al., 2011; Komarraju et al., 2011). For instance, Teh et al. (2011) and Kwon & Song (2011) examined the personality traits with knowledge-sharing behaviour and information

competency and concluded that students' personality traits moderated their information-sharing and seeking behaviour. Similar studies found Facebook usage and addiction mediated by personality traits (Błachnio et al., 2017; Shen et al., 2015; Tang et al., 2016 & Darbyshire et al., 2016). In another context, Al-Samarraie et al. (2017) measured the online information-seeking behaviour of students with the help of NEO PI-RTM and concluded that the affective responses of information seekers could be different from one another because of their specific personality traits. Ahmed et al. (2019) claimed that knowledge gaps and indefinite situations create vagueness in the work progress of information seekers. Against the background of diverse yielding diverse conclusions and findings, this study seeks to explore further the extent student's personality traits influence their information literacy skills in the Ghanaian context. This purpose is achieved through a research question and a hypothesis.

## 2.8 Research Question

**To what extent do students possess the five-factor personality traits?**

### Hypothesis

**Ho:** There is no significant impact of students' personality traits on their information literacy skills.

## 3.0 RESEARCH METHODOLOGY

### 3.1 Research Design

The study adopted the quantitative approach and a descriptive cross-sectional survey design. The approach was necessitated by the numeric nature of research data and the design by the purpose of the study (descriptive) and the time dimension (cross-sectional) for collecting the data from the sampled colleges.

### 3.2 Population, Sample and Sampling

The target population for the study was 3239 students from three selected Colleges of Education in Ghana, namely, Al-Faruq College of Education, St Joseph College of Education and St. Vincent College of Education. Each college constituted a stratum from which disproportionate random sampling was used to select students. The disproportionate sampling technique was applied because of the unequal distributions of populations in the colleges, gender and levels of study. A total sample size of 370 was determined following guidelines suggested by Bartlett et al., 2001 and cited in Cohen et al. (2018; p.207).

### 3.3 Study Instrument

The study utilised the Big Five Inventory (BFI) by John and Srivastava (Ashraf et al., 2019) to assess student personality traits. This questionnaire consists of a 44-item inventory designed to identify and evaluate which big five personality dimension is dominant to a person. The inventory ranges from one (1) to five (5), corresponding to strongly disagree for one, disagree for two, neutral for 3, agree for 4 and strongly agree for five. The internal reliability of the inventory is Cronbach's alpha .79 to .88 (Balgui, 2018). Information literacy was also measured

by adapting a close-ended Likert scale questionnaire by Zeeshan et al. (2020). The scale ranged from 1, representing 'strongly disagree', to 5, representing 'strongly agree'. The questionnaire was personally distributed to the respondents after they had been briefed and consented to be part of the study. The respondents were given 48 hours to complete and return the questionnaires to the authors. Descriptive statistics (mean and standard deviation) and standard multiple regression were used to answer the research question and hypothesis at  $p = 0.01$ .

#### 4.0 RESULTS OF THE STUDY

Three hundred and seventy (370) respondents were used for the study in relation to the questionnaires administered. Two hundred (200), representing 54%, were male students, while one hundred and seventy (170), representing 46%, were female students.

Of the three hundred and seventy (370) respondents, only four (4), representing 1%, were level 100 students. More than half of the respondents, two hundred and fifty-five (255), representing 69%, were level 200 students, while seventy-four (74), representing 20%, were in level 300. Thirty-seven (37) of them, or 10% of the respondents, were students at level 400.

#### 4.1 Research Question

##### To what extent do students possess the five-factor personality traits?

The student's personality traits were assessed as a mean of the total score of each of the domains of the Big Five Inventory obtained from the samples. In an attempt to determine the personality of the students using the BFI scale, the following indicators and ranges were applied: low (1.00-1.99), average (2.00-2.99), high (3.00-3.99) and very high (4.00-4.99). The outcome of the assessment of the students' traits put the range of the means from 3.00 to 4.99, which signifies that the profile of the personality traits is high based on the criteria for this study.

**Table 1: The Five-Factor Personality Traits (FFPT) possessed by College of Education students (N=370)**

| FFPT                   | N   | M    | Interpretation |
|------------------------|-----|------|----------------|
| Agreeableness          | 370 | 4.00 | Very High      |
| Conscientiousness      | 370 | 3.79 | High           |
| Extraversion           | 370 | 3.50 | High           |
| Neuroticism            | 370 | 3.07 | High           |
| Openness to experience | 370 | 2.92 | Average        |

**Ho:** There is no significant impact of students' personality traits on their information literacy skills.

A standard multiple regression of the data showed that the independent variables (neuroticism, openness, agreeableness, extraversion and conscientiousness) predicted information literacy,  $F(370) = 195.704$ ,  $p < .000$ , which indicates that the five-factor personality traits under study have a significant impact on information literacy skills. Moreover, the  $R^2 = .697$  depict that

the model explains 69.7% of the variance in information literacy skills. Table 2 shows the summary of the findings.

**Table 2: Standard Multiple Regression Analysis of students' traits and information literacy skills.**

| Hypotheses      | Variables         | B     | T      | p-value | Partial Correlation | Hypotheses Supported |
|-----------------|-------------------|-------|--------|---------|---------------------|----------------------|
| H <sub>01</sub> | Openness          | .006  | .192   | .848    | 0.009               | No                   |
| H <sub>01</sub> | Conscientiousness | -0.14 | -.481  | .631    | -0.023              | No                   |
| H <sub>01</sub> | Extraversion      | .013  | .431   | .667    | 0.021               | No                   |
| H <sub>01</sub> | Agreeableness     | .026  | .766   | .444    | 0.037               | No                   |
| H <sub>01</sub> | Neuroticism       | .848  | 26.102 | .001*   | 0.0784              | Yes                  |
| R               | .697              |       |        |         |                     |                      |
| F (357)         |                   |       |        |         |                     |                      |

**Note:** \*p<0.01

Based on the results displayed in Table 2, the study concludes that four of the five personality traits (except neuroticism) do not significantly impact students' information literacy skills. Hence, we fail to reject the hypothesis that Openness to experience, conscientiousness, extraversion and agreeableness significantly impact students' information literacy skills. On the other hand, the alternate hypothesis that there is a statistically significant impact of neuroticism on students' information literacy skills is accepted.

## 5.0 DISCUSSION

The research question sought to find the students' dominance of five-factor personality traits and also tested the hypothesis of whether these personality traits impact their information literacy. According to the data in Table 1, the student's personality traits were demonstrated by their corresponding mean scores of Agreeableness (4.00), Conscientiousness (3.79), Extraversion (3.70), Neuroticism (3.07), and Openness to Experience (2.92). These results indicate that the students' agreeableness level is very high, conscientiousness, neuroticism, and extraversion levels are high, while the level of openness to experience is average.

The standard multiple regression of the factors in Table 2 established that all the factors but neuroticism positively impacted students' information literacy skills, albeit insignificantly. Openness to experience [ $\beta=0.006$ , p-value= $0.848>0.01$ ] indicates that a student's openness to experience insignificantly yet positively impacts students' information literacy skills. In other words, if a student's Openness to experience increases by one unit, student information literacy skills will increase by 0.006. Conscientiousness [ $\beta= -0.14$ , p-value= $0.631>0.01$ ] indicates that a teacher's Conscientiousness insignificantly yet negatively impacts students' information literacy skills. Extraversion [ $\beta = 0.016$ , p-value =  $0.852 > 0.01$ ] indicates that a student's Extraversion trait insignificantly yet positively impacts student literacy skills. Agreeableness [ $\beta = 0.026$ , p-value =  $0.444 > 0.01$ ] indicates that a student's Agreeableness positively, albeit insignificantly, impacts students' information literacy skills. Neuroticism [ $\beta=0.848$ , p-value =  $0.001 < 0.01$ ] demonstrates that the neuroticism of a student is related to students' information



literacy skills. Neuroticism is the factor with a statistically significant association with student information literacy skills. Neurotic students experience much stress, worry about different things and feel anxious about their information-searching behaviour.

The diverse findings for the impact of each of the traits on college students in Ghana align with, and at the same time, interrupt other conclusions derived from prior studies. For instance, some studies established a statistically significant impact of agreeableness (Skrinjaric, 2023), conscientiousness (Uslu & Durak, 2022), extraversion (Van Laar et al., 2020), openness to experience (Fraillon et al., 2020) on information literacy skills contrary to this study's findings. Moreover, some have reported a negative impact of neuroticism on diverse behavioural and psychological activities, unlike what was found in this study. Prior studies reporting a positive relationship between neuroticism and students' information literacy skills abound (Andreassen et al., 2013; Shonfeld et al., 2022). The personality disposition and orientation of neurotic students fortify their quest to seek more information since any information vacuum becomes a serious threat and jeopardises their lives. Neuroticism, if the threshold is not high, moderates students' information-seeking behaviour since the minimal level of anxiety, tension, and nervousness in the individual's mood state becomes a motivational force to put the individual on the toes to find information to feel good. The absence of enough information among neurotic individuals creates suspicion and imbalance in their body state.

### 5.1 Conclusion and Implications for Practice

The study investigated the effects of the student's personality traits on their information literacy skills and found insignificant impacts of students' traits such as agreeableness, conscientiousness, extraversion, neuroticism and openness to experience on their information literacy skills. However, there was a statistically significant impact of students' neurotic traits on information literacy skills. Hence, the study suggests that tutors in Colleges of Education should take steps to know their student personality profiles to guide students' information-seeking skills, competencies and learning in general.

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