The impact of the Big Five personality traits on the academic performance of Business English undergraduates at Foreign Trade University

Nguyen Ngoc Diep[1], Dinh Thi Ngoan[2]

[1] Email: ngocdiep.tnhp.99@gmail.com
[2] Email: ngoandt@ftu.edu.vn
Foreign Trade University, Vietnam

ABSTRACT: *The paper aims to investigate the impact of the Big Five personality traits on the academic performance of college students within the context of the Faculty of Business English at Foreign Trade University. A quantitative approach was applied in this study. Primary data was collected through an online questionnaire. Cumulative Grade Point Average (CGPA) was used as the academic performance measure, whereas the Big Five personality traits were measured using the extra short version of the Big Five Inventory-2. Regression results showed that 41.2 percent of the variance in CGPA is explained by personality traits. Conscientiousness and Openness to Experience were found to have significant and positive impacts on CGPA, while Neuroticism was found to have a significant negative impact. It is concluded that Conscientiousness and Openness to Experience enhance academic performance, and Neuroticism impairs it. Suggestions were made on creating an appropriate fit between teaching and assessment methods and individual differences in personality among college students. Limitations of the personality trait instrument and the academic performance measure were considered.*

KEYWORDS: **Personality traits, Big Five, BFI-2-XS, academic performance, Grade Point Average, FBE undergraduates.**

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1. Introduction

The concept of personality traits began to gain attention from the 30s and 40s of the last century and was continuously explored in the last century. One of the very first significant studies of this concept was conducted by Cattell (1945), in which he suggested a list of twelve personality factors. Later, Norman (1963) developed a shorter personality rating scale, which measures personality in five dimensions: Extroversion or Surgency, Agreeableness, Conscientiousness, Emotional Stability, and Culture. Based on Norman's classification of personality traits, Costa & McCrae (1980) provided an alternative model called NEO (Neuroticism, Extroversion, Openness), which was later developed into the NEO Personality Inventory (Costa & McCrae, 1985). The NEO Personality Inventory measures personality in five dimensions, or traits, namely Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. This model and its revised version (Costa & McCrae, 1992a) are the most widely used measurements for personality in later studies. The five personality traits in the NEO Personality Inventory are considered very stable and easily distinguishable from one another, which accounts for the success in correlating or relating them with abilities, methods, behaviors, strategies, and performance (Jensen, 2015).

The research on the link between personality and academic performance dated back to the early twentieth century and gained enormous attention over the past century. The research can trace its origin to the meta-analysis by Webb (1915), in which he studied the correlations between individual differences and academic performance of British college students and schoolboys. Webb (1915) concluded that the role of personality in predicting academic performance is as significant as that of cognitive ability. However, most of the following studies carried out before the 1990s considered intelligence, or intellectual abilities, as the most and only significant internal factor in

predicting the academic performance of students (Ackerman & Heggestad, 1997). It was not until the 1990s that researchers began to consider the significance of personality traits in predicting academic performance. Since then, various studies have shown that some personality traits influence students' academic performance (Costa & McCrae 1992; Hojat et al., 1993; Chamorro-Premuzic & Furnham, 2003; Komarraju & Karau, 2005; Conard, 2006; O'Connor & Paunonen, 2007).

Despite evidence from previous literature on the link between personality traits and academic performance, it would be complicated to conclude about the universality of this link. One reason is that there have been varying results about which of the five personality traits affect academic performance. While Conscientiousness has been consistently proven to have a significant relationship with academic performance, those of the other traits vary (Costa & McCrae 1992; Hojat et al., 1993; Chamorro-Premuzic & Furnham, 2003; Komarraju & Karau, 2005; Conard, 2006; O'Connor & Paunonen, 2007). On the other hand, the variations in methods of measuring academic performance, international differences in defining academic performance, and varying intervals between measuring personality traits and academic performance also make it difficult to conclude the validity of relationships between the five personality traits and academic performance in different contexts (Conard, 2006).

In Vietnam, little research has been carried out to find out whether there are any relationships between the Big Five and Vietnamese students' academic performance. In fact, little emphasis has been put on the role of personality in consulting and recruiting post-secondary students. The authors believe that more research on this matter will provide a new approach for post-secondary educators in student orientation. This issue is attracting enormous attention from the public.

Therefore, this study with the topic of *the impact of Big Five personality traits on the academic performance of Business English undergraduates at Foreign Trade University* is expected to partly close the gap by finding out the relationships between the Big Five and academic performance within a specific context of the Faculty of Business English at Foreign Trade University. The study aims to address the question: *To what extent do big five personality traits (Neuroticism, Extraversion, Openness to Experience, Agreeableness, Conscientiousness) affect the academic performance of FBE undergraduates?* This research is expected to be valuable reference material for educators and undergraduates of the Faculty of Business English at Foreign Trade University, as well as to provide empirical evidence for Vietnamese college educators in applying personality trait rating scales in their education strategies.

2. Literature Review

2.1. Personality traits

Researchers have gone a long way to reach a consensus on the fundamental dimensions of personality. Before the 1930s, efforts had been made to classify personality traits and find proper names to describe them, but none came to a completion (Gesell, 1926; Partridge, 1910; Perkins, 1926). The first successful attempt to classify personality traits was made by Allport and Odbert (1936), who classified 18,000 words and expressions describing personality into four categories. Continuing the work of Allport and Odbert (1936), Cattell (1943) worked on reducing the number of trait terms into a more consistent list by grouping the 18,000 terms suggested by Allport and Odbert (1936) into 150 categories and added 21 categories, then using factor analysis to reduce the said 171 categories into 60 large clusters. Cattell (1945) proceeded to condense the 60-cluster list to 35 clusters and conducted a centroid analysis on 208 mature male adults who worked in various fields using the said 35 clusters. This analysis generated 12 factors, which were then sufficiently rotated for simple structure. The twelve-factor list suggested by Cattell (1945) was then analyzed by various authors. Fiske (1949) carried out three separate factor analyses on twenty-two of the thirty-five variables suggested by Cattell (1945) and found five recurrent factors, namely *Social Adaptability, Conformity, Inquiring Intellect, Emotional*

Control, and Confident Self-Expression.

On the other hand, Tupes and Christal (1958), from the list of variables suggested by Cattell (1945), also found five meaningful and relatively independent factors, which the authors believed to be adequately universal and context-insensitive to be applied in various samples. Such five factors, namely *Extroversion or Surgency, Agreeableness, Conscientiousness, Emotional Stability, and Culture*, were replicated by Norman (1963) in his study on four samples of male college students from the University of Michigan. Results of his study served as consistent and clear evidence for the existence of the five relatively orthogonal, easily interpreted personality factors.

However, it was not until the 1980s that the significance of the five factors in personality study was widely recognized and acknowledged among researchers. Many later studies once again confirmed the significance of the five factors, and researchers began to work out a personality trait rating scale to measure such five factors. Eysenck (1963) identified Extraversion (E) and Neuroticism (N) as the two major factors of psychological tests, and Wiggins (1968) named these two factors the Big Two. Costa and McCrae (1980) added to these Big Two a factor called Openness to Experience (O), creating the NEO model; and later, these authors introduced questionnaires to measure two more factors, called Agreeableness (A) and Conscientiousness (C) (Costa and McCrae, 1985). Costa and McCrae (1985) compared the NEO model factors with the factors suggested by Norman (1963). They concluded that the Neuroticism in NEO was the other extreme of Emotional Stability, NEO Extraversion was equivalent to Surgency, and NEO Openness to Experience was strongly related to Culture. The term Big Five was suggested by Goldberg (1981), as he synthesized various studies of previous researchers and acknowledged the universality of the five factors suggested by Norman (1963). Ever since, the Big Five theory, or the Five-Factor Model (FFM), has become the 'theory of everyone' (Costa and McCrae, 2009). This theory was again confirmed by Goldberg (1990). He combined the list of 2800 adjectives used to describe personality suggested by Norman (1967) into seventy-five clusters and conducted a factor analysis of these clusters, using responses from college students who provided both self-rating and peer-rating descriptions on the adjectives. Results showed that no factor other than the Big Five was found. This once again proved the generality of the Big Five personality traits.

Table 1: Definers of the Big Five personality traits

Factor Name	Number	Factor Definers
Extraversion	1	Warmth
	2	Gregariousness
	3	Assertiveness
	4	Activity
	5	Excitement Seeking
	6	Positive Emotions
Agreeableness	7	Trust
	8	Straightforwardness
	9	Altruism
	10	Compliance
	11	Modesty
	12	Tender-Mindedness
Conscientiousness	13	Competence
	14	Order
	15	Dutifulness
	16	Achievement Striving
	17	Self-Discipline
	18	Deliberation
Neuroticism	19	Anxiety
	20	Hostility
	21	Depression
	22	Self-Consciousness
	23	Impulsiveness
	24	Vulnerability
Openness to Experience	25	Openness to Ideas
	26	Openness to Fantasy
	27	Openness to Aesthetics
	28	Openness to Actions
	29	Openness to Feelings
	30	Openness to Values

(Source: Costa and McCrae, 1985)

After the consensus about the five fundamental dimensions of personality had been established, attempts were made to design a personality trait rating scale. The most widely accepted and used personality measurements were the NEO questionnaires introduced by McCrae and Costa (1985) based on their descriptions of the Big

Five personality traits, as shown in Table 1. The first NEO questionnaire was the NEO Inventory, a 144-item questionnaire established to measure the original three dimensions of the NEO model (Costa & McCrae, 1980). Each of the six facets defining each broad trait was measured by eight items, and overall scores were calculated by adding up the scores of the six facets. In 1985, upon completing the set of descriptions of all five personality factors, Costa and McCrae (1985) constructed a revised version of the NEO-PI, called NEO-PI-R (NEO Personality Inventory-Revised), to measure the five personality traits. The NEO-PI-R consists of 240 items, each rated on a Likert scale from 1 - "Strongly Disagree", to 5 - "Strongly Agree". The internal consistency of the NEO-PI-R and the test-retest reliability of the NEO-PI-R were proven high (Costa & McCrae, 1992a). The NEO Five-Factor Inventory (NEO-FFI) (Costa & McCrae, 1992a) is a shorter version of the NEO-PI-R, consisting of only 60 items measuring the five main personality factors. The NEO-FFI items were selected from the NEO-PI-R items that showed the strongest correlations with their respective domain scores, without regard to the item's proposed facets. In other words, the thirty facets comprising the Big Five factors are not equally represented in the NEO-FFI. The NEO-FFI form also possesses adequately high internal consistency and temporary stability (Costa & McCrae, 1992b).

Despite being considered the most valid and reliable instruments for research related to the Big Five personality traits, NEO questionnaires are not always used by researchers, mainly due to the difficulties in accessing the instruments and the length of the questionnaires. Many public alternatives of the NEO questionnaires have been introduced to facilitate more research in the relevant fields and on relevant topics. One of the most widely known NEO alternatives is the Big Five Inventory (BFI), established by John, Donahue and Kentle (1991). BFI is a 44-item public domain that allows efficient and flexible evaluations of the five personality traits. Similar to the NEO forms, the BFI items are also rated on a 5-point Likert scale, with 1 indicating very strong disagreement and 5 indicating very strong agreement with the item statements. However, the BFI items are shorter and less complicated than NEO items. The psychometric properties of the BFI have been confirmed by various researchers (Worrell & Cross Jr, 2004; Fossati et al., 2011; Ubbiali, Chiorri & Hampton, 2013; Alansari, 2016). Later, Soto and John (2017) introduced a revised version of the BFI, called Big Five Inventory-2 (BFI-2). The BFI-2 is also a public instrument with 60 items to measure personality traits in its five fundamental dimensions. The authors stated that this revised version is "an advance over the original BFI" (Soto & John, 2017, p.2), with greater bandwidth, accuracy, and predictive capacity than the original BFI, all while maintaining the conceptual emphasis, simplicity, and comprehensibility of the original instrument. The BFI-2 also shows a high convergent validity correlation with the NEO-PI-R, with a mean correlation value of .79 (Rammstedt et al., 2018). After the development of the BFI-2, recognizing the need for even shorter personality rating scales, the same authors introduced two shorter versions of it, namely the short form of BFI-2 (BFI-2-S) and the extra short form of the BFI-2 (BFI-2-XS). The BFI-2-S is a 30-item personality measure, whereas the BFI-2-XS contains only 15 items.

On the one hand, these instruments may be preferable in situations when very brief measures may be required to avoid participant exhaustion, irritation, and reckless responses. On the other hand, these instruments have sufficiently high validity and reliability on the domain level (i.e., the main personality trait level, rather than the sub-trait level) in relation to the original form. The authors also pointed out that the BFI-2-S and the BFI-2-XS correlate highly with the NEO-PI-R.

2.2. Academic performance

There has been a consensus that *academic performance,* or academic achievement, is a factor of academic success. In fact, *academic performance* is the most widely used measurement of academic success, according to a synthesis by York, Gibson and Rankin (2015) as shown in Table 2.

Table 2: Types of Outcomes Measured as Academic Success

Total n=31		% (n)
Academic Achievement	GPA	58.4 (17)
	Grades	12.9 (4)
Career Success	Extrinsic	9.7 (3)
	Intrinsic	6.5 (2)
Satisfaction	Overall College Experience	9.7 (3)
	Course Experience	3.2 (1)
Persistence	Degree Completion Rate	3.2 (1)
	Retention	19.4 (6)
Acquisition of skills and competencies	Critical Thinking	19.4 (6)
	Academic Skills	16.1 (5)
	Affective Outcomes	12.9 (4)
Attainment Learning Objectives	Engagement	16.1 (5)
	Institutional Objectives	12.9 (4)

(Source: York, Gibson and Rankin, 2015)

The term *academic achievement* has also been measured in different ways by various researchers. Tracey and Sedlacek (1985) considered *academic achievement* as a traditional, cognitive measure of academic success, along with persistence. Tracey once again restated his opinion on *academic achievement* in a study in 2012, in which he used *academic achievement*, measured by grade point average (GPA), and persistence as academic success criteria (T. J. G. Tracey et al., 2012). This opinion was supported by Gore Jr (2006) as they considered GPA and persistence as variables of college outcomes. Zajacova, Lynch and Espenshade (2005), Snyder *et al.* (2002), Lizzio, Wilson and Simons (2002), Dennis, Phinney and Chuateco (2005), DeFreitas (2012) are among other authors who used GPA to measure *academic achievement.* On the other hand, Trueman and Hartley (1996) measured the samples' *academic performance* with three criteria: scores on coursework completed over the year, scores on examinations taken over the year, and the overall average score. Choi (2005) measured *academic performance* with term grades, i.e., the composite points earned in a course, whereas Harackiewicz et al. (2002) used both GPA and final grades in the course as measures of *academic achievement* in university.

From empirical literature, it is clear that GPA is the most commonly used measure of *academic performance.* Although it would be complicated to conclude that GPA is the best academic performance criteria, it would be safe to say that GPA is a sufficiently reliable measure of college students' academic achievement, and the ease with which GPA can be calculated greatly facilitates the research procedure.

2.3. Personality traits as predictors of academic achievement

There have been three strong reasons proposed for using personality traits as predictors of academic achievement. Firstly, behavioral tendencies reflected in personality traits have been suggested to influence certain habits affecting academic performance (O'Connor & Paunonen, 2007). Rothstein *et al.* (1994) stated that individual differences in particular personality traits could be hypothesized to be linked to scholastic success, to the degree that academic performance is affected by characteristic modes of actions such as *Perseverance, Conscientiousness, Talkativeness, Dominance*, and the like. Secondly, whereas cognitive ability demonstrates what an individual is capable of doing, personality characteristics reflect what he will do (Furnham & Chamorro-Premuzic, 2004). In other words, a personality scale may work as a more accurate measure of long-term academic performance than a cognitive ability scale (Goff & Ackerman, 1992). In addition, according to some researchers, despite being a strong indicator of academic performance at lower educational levels, the cognitive ability might lose its predictive validity of academic performance in higher levels of education (Ph L Ackerman, 1994; Sanders et al., 1955; Seth & Pratap, 1971). These three broad justifications provided a strong motive for researching personality traits as predictors of academic performance in higher education.

The relationship between personality traits and academic performance has been confirmed in various empirical studies. Such relationship was first implied in Ackerman's (1996) theory, called PPKI (intelligence as processes, personality,

knowledge, and interests). In this theory, the authors attempted to draw a theoretical framework to understand the connection between non-psychological and intellectual individual contrasts. The theory asserts that personality characteristics play a significant part in the acquisition of knowledge. They direct an individual's decision and level of persistence to participate in intellectually stimulating activities and settings. Hence, this theory implies that personality traits may have an impact on academic achievement. This was confirmed by many later researchers, as they found that non-cognitive factors such as personality traits and learning styles significantly influence academic performance (Busato et al., 2000; Chamorro-Premuzic & Furnham, 2003; De Fruyt & Mervielde, 1996).

Many studies have been conducted to find out the impacts of the Big Five personality traits on the academic performance of college students. *Conscientiousness* is the trait that shows the most consistent connection with high education academic performance. Costa Jr and McCrae (1992) stated in their manual for using NEO questionnaires that *Conscientiousness* is associated with academic performance. Blickle (1996) shared the same opinion, as he noted that constructs similar to *Conscientiousness,* such as *Control, Organization,* and *General Self-Efficacy,* all showed significant positive relationships with academic performance. Similarly, De Raad and Schouwenburg (1996) believed that *Conscientiousness* exhibited a clear connection with academic performance. This relationship was replicated in various undergraduate populations (Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Goff & Ackerman, 1992; Jensen, 2015).

Openness to Experience is also often found to be associated with academic performance in university students. Brand (1994) argued that this association might be explained by the correlation between *Openness to Experience* and general intelligence. On the other hand, Goff and Ackerman (1992) believed that its strong correlation explains this Big Five trait's association with academic performance with Typical Intellectual Engagement. This trait refers to an individual's usual attempts to engage in intellectual pursuits. However, empirical studies have not always found clear evidence for this relationship. Whereas Komarraju and Karau (2005), O'Connor and Paunonen (2007), Furnham and Chamorro-Premuzic (2004) found that academic achievement can be predicted by *Openness to Experience,* some other researchers found that this trait did not always show predictive validity in terms of academic performance (Busato et al., 2000; Chamorro-Premuzic & Furnham, 2003; Goff & Ackerman, 1992).

Extraversion has also been associated with academic performance in many studies for the last century. An early study by Entwistle and Entwistle (1970) found that college students who performed well academically tended to score below average on *Extraversion.* These authors believed this relationship might be attributed to the fact that stable introverts have better learning methods, and extroverts tend to be distracted by their enjoyment of social life. More recent studies also suggested that the tendency to underperform in academic contexts can be explained by their distractibility, impulsiveness, and sociability (Sanchez-Marin, Rejano-Infante, & Rodriguez-Troyano, 2001, as cited in Chamorro-Premuzic & Furnham, 2003). A negative relationship between *Extraversion* and academic performance has been found in many studies on undergraduate populations (Lievens et al., 2002; Komarraju & Karau, 2005; O'Connor & Paunonen, 2007; De Feyter et al., 2012). However, some researchers have also suggested that the correlation between *Extraversion* and academic performance is positive (Kappe & van der Flier, 2010), whereas some others believe that such correlation does not exist (Conard, 2006; Nguyen et al., 2005; Vedel, 2014). There has yet to be a consensual explanation for such confusion, so it is expected that this study would provide some plausible explanations for the inconsistency of the *Extraversion* - performance correlation.

The Big Five Trait *Neuroticism,* also referred to as *Psychoticism* or the other polar of *Emotional Stability,* has also been found to have some impact on academic performance.

Most commonly, it was believed to negatively impact college students' academic performance (Chamorro-Premuzic & Furnham, 2003; Furnham & Medhurst, 1995). This negative relationship has typically been illustrated with regards to stress and anxiety in examination (Zeidner & Matthews, 2000), although Halamandaris and Power (1999) argued that such traits, i.e., stress and anxiety, may influence academic performance in a more general way, rather than just through achievement in exams. Some studies on college student populations have provided evidence for the negative relationship between *Neuroticism* and academic performance (Chamorro-Premuzic & Furnham, 2003; Chamorro-Premuzic & Furnham, 2003; Komarraju & Karau, 2005). However, it has also been suggested that there may be an ambiguity in the link between *Neuroticism* and academic performance. In particular, Eysenck and Eysenck (1985) suggested that the motivational effects of anxiety, a facet of *Neuroticism,* may be stronger in more intelligent students, as they barely encounter difficulty in learning. *Neuroticism* in that sense is a positive predictor for brilliant participants but a negative predictor for those with less talent. Besides, De Feyter et al.'s (2012) research revealed that *Neuroticism* had a positive indirect impact on the academic performance of students with higher levels of self-efficacy and a positive direct impact at lower levels of self-efficacy.

Agreeableness is the trait that is least commonly associated with academic performance. Most studies found no significant impacts of this trait on students' academic performances at all educational levels (Chamorro-Premuzic & Furnham, 2003; Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Furnham & Chamorro-Premuzic, 2004; Komarraju & Karau, 2005). This may be explained by the insignificant correlation between intelligence and *Agreeableness* (Zeidner & Matthews, 2000).

It could be seen that the relationships between the five fundamental dimensions of personality, i.e., the Big Five personality traits and academic performance at higher educational levels, have been investigated for many decades in a great variety of international studies. The issue is not only of great concern in developed countries but lately, has also begun to gain attention in developing countries (Geramian et al., 2012; Raza & Shah, 2017; Seman & Ismail, 2019; Siddiquei & Khalid, 2018).

However, little research on the relationship between personality traits and students' academic performance has been conducted in Vietnam. Therefore, this study is intended to determine whether and to what extent the Big Five personality traits influence the academic performance of Vietnamese college students, particularly those who major in Business English at Foreign Trade University.

2.3. Hypothesis development

Neuroticism as an academic performance predictor

The authors expect *Neuroticism* to have a significant and negative impact on the academic performance of FBE undergraduates. This is predicted based on previous evidence for the relation between *Neuroticism* and academic performance of college students (Chamorro-Premuzic & Furnham, 2003; Chamorro-Premuzic & Furnham, 2003; Komarraju & Karau, 2005), and on the expectation that some *Neuroticism* facets, such as stress and anxiety, may negatively influence students' achievement in exams (Zeidner & Matthews, 2000). Therefore, the following hypothesis will be tested:

Hypothesis 1: Neuroticism has a negative impact on the academic performance of FBE undergraduates.

Extraversion as an academic performance predictor

It is expected that *Extraversion* significantly and negatively affects the academic performance of FBE undergraduates, although the relationship between *Extraversion* and academic performance of college students has not been as well supported as that of *Neuroticism* and academic performance. This prediction is made based on empirical evidence for the influence of *Extraversion* on the academic performance of students (Lievens et al., 2002; Komarraju & Karau, 2005; O'Connor & Paunonen, 2007; De Feyter et al., 2012) and

on the expectation that the active involvement in the social life of extraverts may compromise their learning habits (Entwistle & Entwistle, 1970). On such basis, the following hypothesis is proposed:

Hypothesis 2: Extraversion has a negative impact on the academic performance of FBE undergraduates.

Openness to Experience as an academic performance predictor

The authors expect *Openness to Experience* to have a significant and positive impact on the academic performance of FBE undergraduates. On the one hand, this prediction is made based on previous findings pointing toward such a relationship (Furnham & Chamorro-Premuzic, 2004; Komarraju & Karau, 2005; O'Connor & Paunonen, 2007). On the other hand, the authors believe that the strong correlation between *Openness to Experience* and general intelligence (Zeidner & Matthews, 2000) indicates a possible impact of the said trait on academic performance. Therefore, the following hypothesis will be tested:

Hypothesis 3: Openness to Experience has a positive impact on the academic performance of FBE undergraduates.

Agreeableness as an academic performance predictor

Despite the weak correlation between *Agreeableness* and general intelligence (Zeidner & Matthews, 2000), the authors still expect this personality trait to impact the academic performance of FBE undergraduates significantly. On the one hand, people who score high in *Agreeableness* tend to be more cooperative (Norman, 1963)"type":"article-journal","volume":"66"},"uris":["http://www.mendeley.com/documents/?uuid=2474ad43-8199-4ac3-a803-2dda4a486ddb"]}],"mendeley":{"formattedCitation":"(Norman, 1963, which may allow them to communicate more effectively with other students and lecturers, leading to better performance in courses that require more interaction. On the other hand, although less common, several studies on college students have provided evidence for the relationship between *Agreeableness* and academic performance (Nye et al., 2013; Seman & Ismail, 2019; Vedel, 2014). Therefore, the following hypothesis is proposed:

Hypothesis 4: Agreeableness has a significant impact on the academic performance of FBE undergraduates.

Conscientiousness as an academic performance predictor

Conscientiousness is expected to have a strong positive impact on the academic performance of FBE undergraduates. This prediction is based on the consistency of findings in previous literature on the effect of *Conscientiousness* on the academic performance of college students (Chamorro-Premuzic & Furnham, 2003; Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Goff & Ackerman, 1992; Jensen, 2015). Moreover, *Conscientiousness* facets such as dutifulness, competence, or achievement striving are highly likely to correlate with better academic performance. For these reasons, the following hypothesis is proposed:

Hypothesis 5*:* Conscientiousness has a positive impact on the academic performance of FBE undergraduates.

The research framework is depicted in Figure 1.

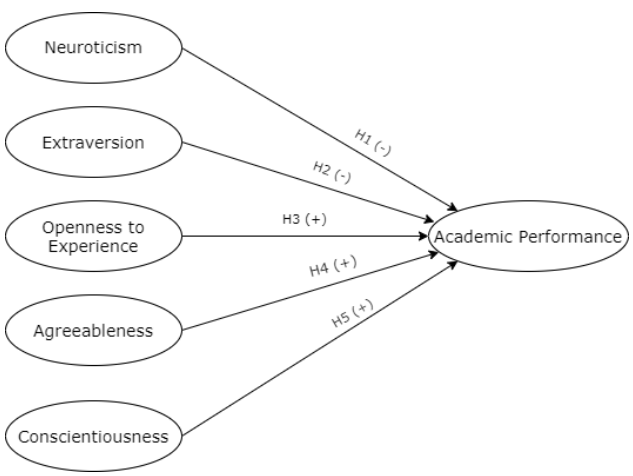

Figure 1: Conceptual framework

3. Research method

3.1. Participants and procedure

Primary quantitative data is collected using an online questionnaire in this study. After being carefully reviewed, the survey was officially launched on Facebook to collect primary data for analysis. The survey was distributed on August 30th, 2021, and stopped accepting responses on

May 14th, 2021. After two weeks, 239 responses were collected in total. Among the responses received, four were invalid, reducing the number of valid responses for analysis to 235.

The valid data then went through the quantitative data analysis phase with the use of the SPSS Software. First, the dataset was checked for validity and reliability to make sure that it was not affected by non-response bias, multi-collinearity, or internal inconsistency. Then, Exploratory Factor Analysis was conducted to ensure that all the items on each subscale measure the same intended variable. Next, analysis was performed to obtain descriptive statistics of the dataset. Finally, the authors examined the impact of each Big Five trait on the Cumulative GPA of FBE undergraduates, using SPSS's Multiple Linear Regression.

3.2. Measure

The questionnaire is designed based on the 15-item BFI-2-XS (Soto & John, 2017) and has gone through several improvement steps. In order to obtain data from FBE undergraduates with higher validity, the authors translated the questionnaire into Vietnamese, then asked a competent translator to translate the Vietnamese version into English to check the accuracy of the Vietnamese version. To ensure the validity of the questionnaire, the authors also submitted it to three researchers of relevant fields to be reviewed and edited accordingly.

The questionnaire is divided into three sections regarding respondents' information, academic performance, and personality traits measured in five dimensions, respectively. The first section of the questionnaire serves as a filtering tool to make sure that only FBE undergraduates of cohorts 56, 57, and 58 are evaluated. Additionally, this section also aims at collecting the necessary demographic information of the respondents.

The second section of the questionnaire contains a question inquiring about the respondents' 10-point Cumulative Grade Point Average (CGPA) for the last two semesters, which is used to measure academic performance. Specifically, the respondents are asked to choose one of the five given ranges into which their CGPA for the last two semesters fall. This method of collecting data on participants' academic performance has been utilized and validated by various researchers working on similar topics (Conard, 2006; Jensen, 2015; Nguyen et al., 2005; Nye et al., 2013).

The third section contains 15 items measuring five independent variables: *Neuroticism* (N), *Extraversion* (E), *Openness to Experience* (O), *Agreeableness* (A), and *Conscientiousness* (C). These five variables coincide with five fundamental dimensions of human personality as agreed on by established psychological researchers (Costa & McCrae, 1985; John et al., 1991; Norman, 1963). Each independent variable is measured with three items chosen from the BFI-2-XS (Soto & John, 2017). According to these authors, these fifteen items investigate the fifteen most prototypical facets of the Big Five dimensions. In detail, such facets are *anxiety, depression, and hostility for Neuroticism; gregariousness, assertiveness,* and *activity* for *Extraversion; openness to aethestics, openness to ideas, and openness to fantasy for Openness to Experience; altruism, compliance, and trust for Agreeableness; and order, self-discipline, and dutifulness for Conscientiousness.* The items are rated on a Likert 5-point scale, with 1 indicating very strong disagreement and 5 indicating very strong agreement. Table 3 contains the description of all variables chosen in this study.

4. Results

4.1. Descriptive results

The data collected from the survey shows reasonable proportions of participants from different cohorts and of both genders. The survey witness participation of undergraduates from all the targeted cohorts, namely cohort 56, cohort 57, and cohort 58 of the FBE. To be specific, there are 82 participants from cohort 56 (34.9%), 78 participants from cohort (33.2%), and 75 participants from cohort 58 (31.9%)

Before examining the impact of the Big Five traits on FBE undergraduates' academic performance, descriptive analysis was conducted using SPSS. First, the primary independent variables, i.e., the Big Five traits, were calculated

by computing the mean values of the set of items measuring each trait. This means that the primary independent variables are also measured on a 1-to-5 scale. Descriptive statistics of the independent variables are shown in Table 4.

The statistics show that among the Big Five traits, Agreeableness (A) has the highest mean value of approximately 3.7 and the lowest standard deviation of 0.58. The minimum value of this variable is also higher than that of other independent variables. These indicated that Agreeableness is the most common trait among current FBE undergraduates, with most participants scoring high on this subscale. Following Agreeableness, Openness to Experience (O) also appears to be common among participants, with a mean value of approximately 3.55 and a standard deviation of 0.62. Neuroticism (N) and Conscientiousness (C) have their mean values closer to the middle point of 3, with relatively high standard deviations (1 and 0.86, respectively). This indicated that participants have varying levels of Neuroticism and Conscientiousness. At the value of 2.87, the mean value of Extraversion (E) is the lowest of all traits and lower than the middle point of 3. The standard deviation of this variable is 0.8. These indicated that, on average, FBE undergraduates are slightly more on the introvert end of the scale.

As for the dependent variable CGPA, descriptive statistics show that only the highest two (3 and 4) of the five given values appear on the dataset. The CGPA value of 3 accounts for a much higher percentage than the CGPA value of 4 does. The mean value of CGPA is 3.37, which is in the Distinction class according to the degree classification system of Foreign Trade University. Thus, it can be said that, in general, FBE undergraduates perform well academically.

Table 3: Description of variables

Variable	Item	Measurement	Type of variable	Expected relationship with the dependent variable
Neuroticism	N1 - Worry	Interval/ratio	Independent variable	Negative
	N2 - Depressed, blue			
	N3 - Emotionally stable (R)			
Extraversion	E1 - Quiet (R)	Interval/ratio	Independent variable	Negative
	E2 - Dominant, leader			
	E3 - Full of energy			
Openness to Experience	O1 - Art, music, literature	Interval/ratio	Independent variable	Positive
	O2 - Abstract ideas (R)			
	O3 - Original, new ideas			
Agreeableness	A1 - Compassionate, soft heart	Interval/ratio	Independent variable	Positive
	A2 - Rude (R)			
	A3 - Assume best			
Conscientious-ness	C1 - Disorganized (R)	Interval/ratio	Independent variable	Positive
	C2 - Start tasks (R)			
	C3 - Reliable			
Academic performance	CGPA	Interval/ratio	Dependent variable	

(Source: Soto and John, 2017)

4.2. Validity and reliability check

After cleansing the data, the authors proceeded to check the validity and reliability of the survey and the responses. Firstly, the dataset was checked against non-response bias. This process was conducted using the extrapolation method tested by Armstrong and Overton (1977), whereby responses from the first wave of participants and responses from the last wave of participants were compared. Results show that there is no significant difference between them, indicating that non-response bias was not detected.

Then, the dataset was diagnosed for multi-collinearity using the SPSS software. Specifically, collinearity diagnostics showed that the VIF values ranged from 1.08 to 1.55, which were all lower than the cut-off value of 5 and tolerance values ranged from 0.65 to 0.97. This indicated that multi-collinearity was not diagnosed. Correlations between each pair of the Big Five traits were also examined, with results demonstrated in Table 4 below. It can be seen that no value exceeds 0.8, further proving that multi-collinearity was not present (Berry & Feldman, 1985).

Continuing the data analysis process, the authors conducted an internal consistency test to check whether the items intended to measure the same construct sufficiently correlate with one another. This step was carried out using SPSS's Cronbach's Alpha. The cut-off value for Cronbach's Alpha was .6, suggested by Hair et al. (2003). Results shown in Table 5 indicated that the five independent variables have Cronbach's Alpha values ranging from .62 to .88, all above the suggested cut-off point. Therefore, no elimination of items is required.

4.3. Exploratory factor analysis

In the next step, the authors ran an Exploratory Factor Analysis (EFA) using SPSS Software to check whether all the items on a subscale measure the same intended construct. Firstly, a KMO and Bartlett's test was conducted to determine whether a factor analysis would be useful with the dataset. The test returned a KMO Measure of Sampling Adequacy value of 0.75, which was higher than the required value of 0.5 recommended by Kaiser (1974). This indicated that factor analysis would be worthwhile. Moreover, Bartlett's test of sphericity returned a value lower than .0001, which, according to Bartlett (1951), indicated that a data reduction technique would be suitable. Thus, the authors proceeded to conduct the EFA.

The EFA returned two remarkable results confirming that all items on a subscale measure the same intended variable. First, the variance explained by the extracted solution is displayed in Table 6. There, it could be seen that five components with eigenvalues above 1 were extracted, complying with the criterion suggested by Kaiser (1960). Table 6 also displayed the total variance explained after rotation. It could be seen that the total percentage of variance explained remained unchanged but was more evenly distributed over the components. This indicated that the rotated component matrix would be easier to interpret than the unrotated component matrix. In total, the five extracted components explained for 68.54 percent of the variance, higher than the required percentage of 50 percent.

Extraction method: principal component analysis.

Next, the Kaiser-varimax rotation method is applied. In this step, the authors used the criterion for factor loadings suggested by

Table 4: Means, Standard Deviations, and Correlations among variables (N=235)

Variables	Mean	SD	N	E	O	A	C
Neuroticism (N)	3.08	1.00	1				
Extraversion (E)	2.88	.81	-.14	1			
Openness to Experience (O)	3.56	.62	-.25	.09	1		
Agreeableness (A)	3.71	.58	.02	.18	.01	1	
Conscientiousness (C)	3.16	.86	-.58	.25	.22	.05	1

Table 5: Reliability of Scale Items Measuring Factors

Factor	Cronbach's Alpha
Neuroticism (N)	.88
Extraversion (E)	.70
Openness to Experience (O)	.62
Agreeableness (A)	.64
Conscientiousness (C)	.80

Awang et al. (2015), requiring that only items with factor loadings above .60 are retained. The rotated component matrix is displayed in Table 7. It could be seen that all items measuring each factor correlate sufficiently with the intended factor, indicated by factor loadings higher than .60. However, the problem was that several items loaded on two components (items N3, C2, and O3). The criterion suggested by Jabnoun and Al-Tamimi (2003) was applied to determine whether such items could be retained. Specifically, this criterion required that each item display a factor loading difference of at least .3 between the two factors it loads on. It can be seen from the table that all factors satisfied this criterion. Therefore, no elimination of items is needed.

Table 6: Total variance explained

Component	Extracted Components			Rotated Components		
	Total	% of Variance	Cumula-tive %	Total	% of Variance	Cumula-tive %
1	4.04	26.93	26.93	2.48	16.51	16.51
2	2.19	14.58	41.51	2.24	14.94	31.45
3	1.58	10.55	52.06	2.03	13.55	45.00
4	1.47	9.77	61.83	1.77	11.78	56.78
5	1.00	6.71	68.54	1.76	11.76	68.54

Table 7: Rotated Component Matrix

	Component				
	1	2	3	4	5
N2	.87				
N1	.84				
N3	.76	-.36			
C1		.81			
C3		.75			
C2	-.34	.74			
E3			.79		
E1			.76		
E2			.76		
O2				.80	
O1				.73	

	Component				
	1	2	3	4	5
O3			.32	.69	
A1					.77
A2					.77
A3					.74
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					
a. Rotation converged in 6 iterations.					

4.4. Hypotheses Testing

The final step in the data analysis process was to test the proposed hypotheses. In other words, this step aims at determining the impact of the five independent variables and the dependent variable CGPA, which reflects the academic performance of FBE undergraduates. SPSS's Multiple Linear Regression was utilized to achieve this purpose. Table 8 displays the results of regression analysis.

The testing results show that hypothesis 1 is accepted, which means Neuroticism (N) has a significant impact on the academic performance of FBE undergraduates. First, the Pearson correlation shows that N correlates significantly with CGPA with $p < .01$. A negative correlation value implies that such a relationship is negative. Next, coefficient results indicate that N has a significant negative impact on CGPA, with $p < .01$ and a Standardized Coefficient Beta value below zero. Hence, hypothesis 1 stating that Neuroticism has a significant and negative impact on the academic performance of FBE undergraduates is accepted.

In contrast to hypothesis 1, results indicate that hypothesis 2 on the impact of Extraversion (E) and the academic performance of FBE undergraduates is rejected. However, the Pearson correlation value shows that E and CGPA correlate significantly at $p < .05$, Coefficient Beta indicates that the impact of E on CGPA is insignificant ($p > .05$). Therefore, it is concluded that Extraversion has no significant effect on the academic performance of FBE undergraduates.

It can be seen that hypothesis 3 is accepted according to the analysis results, indicating that Openness to Experience has a significant impact on the academic performance of FBE undergraduates. First, the Pearson correlation shows that the correlation between O and CGPA is positive and significant at $p < .01$. Then, Coefficient Beta indicates that O has a positive and significant impact on CGPA with p below the significance level of .05 and a positive β.

Similarly, hypothesis 5 about the impact of Conscientiousness (C) on the academic performance of FBE undergraduates is also accepted. Pearson correlation shows that C correlates strongly with CGPA with $p < .01$. The correlation between C and CGPA is the strongest among all independent variables (with the highest correlation value). Furthermore, the Coefficient β of .59 and p-value below .05 prove that the impact of Conscientiousness on the dependent variable CGPA is significant and positive, which supports H5.

On the contrary, hypothesis 4 about the impact of Agreeableness (A) on CGPA is rejected. Correlation shows that there is no significant relationship between A and CGPA. Hence there is no point looking into the other statistics.

Table 9 displayed the Model Summary. There, it could be seen that the adjusted r-squared value equals .412, indicating that the independent variables explained 41.2 percent of the variation of the dependent variable. This lower-than-50 percentage does not necessarily indicate a weak relationship between the model and the dependent variable but can be explained by the nature of human behavior research (Frost, 2013).

Table 8: Results of hypothesis testing

Hypo.		Correlation	Coefficient	tValue	Significance (p < .05)?	Conclusion
1	N-CGPA	-.53**	-.26**	-4.11	Yes	Accepted
2	E-CGPA	.14*	-.03	-.56	No	Rejected
3	O-CGPA	.30**	.15**	2.90	Yes	Accepted
4	A-CGPA	.09	.08	1.50	No	Rejected
5	C-CGPA	.59**	.41**	6.50	Yes	Accepted
**. Correlation is significant at the .01 level (2-tailed). *. Correlation is significant at the .05 level (1-tailed).						

Table 9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.65a	.42	.41	.37	2.04
a. Predictors: (Constant), O, A, E, N, C					
b. Dependent Variables					

Table 10: Results of ANOVA F-test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.26	5	4.65	33.78	.000b
	Residual	31.54	229	.14		
	Total	54.80	234			
a. Dependent Variable: CGPA						
b. Predictors: (Constant), O, A, E, N, C						

As humans are harder to predict, an inherently more significant percentage of unexplained variation can be expected in studies of such fields (Frost, 2013). Moreover, despite the relatively low adjusted r-squared value, as the independent variables are statistically significant, important conclusions can still be drawn about how changes in the independent variables affect changes in the dependent variable (Frost, 2013). Besides, it could be seen that the Durbin-Watson Statistic is 2.04, which lies in the range between dU and (4 - dU) (dU = 1.667 at the significance level of .01). This indicates that autocorrelation is not detected in the dataset.

Next, ANOVA F-test is conducted to assess the fitness of the regression model that has been established. The results of the F-test are shown in Table 10 above. It could be observed that the p-value in the ANOVA F-test is lower than .0001, which means the predictor variables in the model improve the fitness of the model. Otherwise stated, the regression model established fits the data better than the model with no predictor variables. Hence the fitness of the regression model is verified.

5. Discussion and conclusions

The current study has attempted to examine the impacts of the Big Five personality traits, measured by the extra short version of the Big Five Inventory-2 (Soto and John, 2017a), on the academic performance of Business English undergraduates at Foreign Trade University, measured by their CGPA. The most important findings of this study are that (a) Conscientiousness has the most significant and positive relationship

with the academic performance of FBE undergraduates, (b) Neuroticism has the second most significant and negative correlation with the academic performance of FBE undergraduates, and (c) Openness to Experience has a significant and positive correlation with the academic performance of FBE undergraduates. The results indicated that conscientious, emotionally stable, and open-to-experienced FBE undergraduates are likely to achieve better academic results. These three variables were found to explain 41.2 percent of the variance in the Cumulative GPA of current FBE students. While this is not a high percentage (lower than 50 percent), it is considered acceptable in research regarding human behaviors, as humans are much more complex to predict than physical processes.

Conscientiousness displays the strongest positive impact on the CGPA of FBE undergraduates ($p < .0001$, Coefficient $\beta = .41$). This positive correlation can be attributed to the characteristics of highly conscientious individuals, such as dutiful, organized, competent, and achievement striving. Chamorro-Premuzic and Furnham (2003) found that three Conscientiousness facets, namely Dutifulness, Achievement striving, and Self-discipline, significantly correlate with college students' exam scores. Since exam scores account for the highest percentage of the GPA in most FBE courses (30 percent for mid-term exams and 60 percent for final exams), the finding in this study can be explained in terms of the correlations of such facets and exam scores. This finding on the impact of Conscientiousness on the academic performance of FBE undergraduates is supported by various empirical studies on college student samples (Goff & Ackerman, 1992; Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Jensen, 2015), indicating the consistency of Conscientiousness as an academic performance predictor in post-secondary education. Within the context of this research, it is implied that FBE students who display Conscientiousness qualities, such as dutifulness, self-discipline, and achievement striving, are more likely to achieve good academic results than those who do not.

The second most significant factor that influences the academic performance of FBE undergraduates is Neuroticism, which negatively correlates with CGPA at $p < .0001$ and Coefficient $\beta = -.26$. This result confirmed the authors' initial prediction. The negative impact of Neuroticism and the academic performance of FBE undergraduates can be explained by the anxiety characteristics of emotionally unstable, i.e., neurotic personalities (Zeidner & Matthews, 2000). As stated before, the GPA in most FBE courses is mainly distributed to the mid-term and final exam scores, which can be regarded as stressful for some students (Chamorro-Premuzic & Furnham, 2003). Under such conditions, anxious, depressed, and impulsive individuals are highly likely to underperform, which leads to poor overall academic results. In fact, researchers have found a relatively consistent negative correlation between test anxiety and academic performance (Lent & Russell, 1978; Culler & Holahan, 1980; Dendato & Diener, 1986). With assessment methods that involve less stressful conditions, such as final-project results, the impact of Neuroticism is likely to decrease (Chamorro-Premuzic & Furnham, 2003). Moreover, Impulsiveness, which is a facet of Neuroticism, may affect students' ability to resist desires detrimental to their learning discipline. Consequently, impulsive individuals are unlikely to perform well in a learning environment that requires a lot of self-study, such as in the Faculty of Business English. This is supported by evidence for the negative impact of impulsivity on the academic performance of college students in many previous studies (Frick et al., 1991; Spinella & Miley, 2003; Vigil-Colet & Morales-Vives, 2005).

In line with hypothesis 3, Openness to Experience was found to correlate positively with the CGPA of FBE undergraduates ($p = .04$, Coefficient $\beta = .15$). This result can be explained by the strong correlation between Openness to Experience and general intelligence and vocabulary and general knowledge (Goff & Ackerman, 1992; Ashton et al., 2000). Furthermore, looking at the list of Openness to Experience facets in Table 1.2, it is suggested that Openness to Ideas, Openness to Actions,

and Openness to Values positively correlate with students' academic performance. Individuals who are exposed to more ideas, subjects, and values are likely to be able to think creatively and link different concepts together, which is beneficial for the learning process in college (Komarraju and Karau, 2005). Within the context of the FBE, the finding implies that students who enjoy exposure to new ideas are likely to achieve better academic results. This is supported by evidence from various studies on the impact of Openness to Experience on college students' academic performance (Furnham & Chamorro-Premuzic, 2004; Komarraju & Karau, 2005; O'Connor & Paunonen, 2007).

Contrary to the initial prediction, Agreeableness was found to have no significant impact on the academic performance of FBE undergraduates ($p = .17$). One possible explanation for this is the weak correlation between Agreeableness and general intelligence (Zeidner & Matthews, 2000). This result can also be interpreted with regards to the homogeneity of the sample, which includes FTU Business English students only. It is likely that individual differences in Agreeableness have been restricted by the homogeneity of the sample. In fact, descriptive results have shown that Agreeableness is the most common trait among FBE undergraduates (Mean = 3.71), which means that most FBE students are highly agreeable. Moreover, the low standard deviation of 0.58 also indicated not much variance in Agreeableness among participants. Therefore, it would be understandable that there are no remarkable differences in the level of Agreeableness of those who perform well and those who perform less well academically. However, considering the brevity of the personality measure used in this study, the authors recommend that further research using extensive scales should be conducted before concluding about the collectiveness of Agreeableness among FBE students.

The study also found no significant relationship between Extraversion and the academic performance of FBE undergraduates as reflected by their CGPA ($p = .58$), which goes against the initial prediction. However, this result is not totally unexpected. In fact, empirical research has shown inconsistent results about the relationship between Extraversion and the academic performance of college students. Some researchers found the Extraversion may impair college students' academic performance (Lievens et al., 2002; Komarraju & Karau, 2005; O'Connor & Paunonen, 2007; De Feyter et al., 2012). Some others believe that such correlation is positive (Kappe & van der Flier, 2010). Meanwhile, some researchers found no significant impact of Extraversion on the academic performance of college students (Nguyen, Allen & Fraccastoro, 2005; Conard, 2006; Vedel, 2014). This inconsistency may be explained by the characteristics of the curriculum. While extroverts may perform better in courses that require more social interactions, introverts are more advantaged when it comes to courses that involve more individual work and self-study. The Faculty of Business English curriculum includes both types of courses, which may be why no remarkable differences in academic performance were found between extrovert and introvert FBE undergraduates. However, further research on the FBE population is recommended to confirm whether extroverts perform better in highly interactive courses and introverts perform better in highly individual courses.

Theoretical implications

The findings of this study further clarify the impact of the Big Five personality traits on the academic performance of college students. The fact that personality traits show significant influence on the academic performance of FBE undergraduates has contributed to the universality of the claim that personality traits are worth considering in predicting academic success and career orientation (Costa & McCrae, 1985).

This study found that Conscientiousness is the most significant predictor of academic performance out of the Big Five traits, which is consistent with the majority of previous studies (Goff & Ackerman, 1992; Chamorro-Premuzic & Furnham, 2003; Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Jensen, 2015). The finding of a strong correlation between Conscientiousness and the academic performance of FBE undergraduates as measured

by their CGPA adds to the existing large body of empirical evidence on the connection between Conscientiousness and educational progress.

The finding of a negative relationship between Neuroticism and academic performance also aligns with most empirical studies (Chamorro-Premuzic & Furnham, 2003; Komarraju & Karau, 2005), further proving that Neuroticism is a significant predictor of academic performance in higher education.

That Openness to Experience was found to significantly and positively correlate with the academic performance of Business English students has expanded the amount of empirical evidence on the impact of this personality trait with academic performance in general (Furnham & Chamorro-Premuzic, 2004; Komarraju & Karau, 2005; O'Connor & Paunonen, 2007).

The finding of the insignificance of Agreeableness in predicting the academic performance of FBE undergraduates implies that being cooperative, good-natured, gentle, and not jealous does not provide an advantage for college students in education. This result also agrees with various empirical studies (Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Furnham & Chamorro-Premuzic, 2004; Komarraju & Karau, 2005; Conard, 2006). However, the fact that no participant in this study has an actual 'low' academic performance (i.e., CGPA below 3) should be taken into consideration. Research on more extensive and diverse samples is recommended to clarify the role of Agreeableness in predicting the academic performance of college students.

Despite being expected to show some significant impact on academic performance, Extraversion was found to correlate weakly with the CGPA of FBE undergraduates. This result coincides with what was found in studies by Nguyen, Allen and Fraccastoro (2005), Conard (2006), and Vedel (2014). It implies that, contrary to popular belief, extroverts can actually perform just as well as introverts, and their involvement in social activities does not necessarily distract them from learning.

Finally, this study has proven the validity and reliability of the extra short version of the Big Five Inventory-2 (BFI-2-XS) within the context of the Faculty of Business English. The proven validity and reliability of the instrument in this study suggests that it may be utilized in similar research relating to personality traits on college students in Vietnam.

Practical implications

Several implications for FBE educators and students in particular and Vietnamese college educators and students, in general, can be drawn from the results of this study. Firstly, the overall finding that personality traits can significantly predict students' academic performance implies that lecturers and educators need to acknowledge the diversity in personalities among students. Therefore, lecturers and educators may consider designing teaching methods and activities that match the likely preferences of students. Lecturers and educators may adopt various approaches and activities to engage all students in their lessons at least some of the time. Teachers who employ a wider range of teaching techniques are likely to reach more students during their classes (Komarraju & Karau, 2005).

Secondly, the finding of a positive impact of Conscientiousness on academic performance implies that encouraging the Conscientiousness qualities of students may be the key to boosting their students' academic performance levels. To foster the attributes of Conscientiousness, educators may further emphasize the importance of conscientious behaviors, such as being self-disciplined and organized, in academic success. Educators may also use personality inventories to identify students who score low in Conscientiousness and intervene with planning and time-management courses (Kappe & van der Flier, 2010). As for the FBE students, they may practice conscientious behaviors, such as being organized, self-disciplined, and dutiful, in order to improve their academic performance.

Thirdly, as Neuroticism was found to have a significant negative impact on the academic performance of FBE students, educators may consider employing instruction and assessment methods that can lessen such impact. For example, students who score low in Neuroticism

may benefit from virtual learning, whereby they can study with less anxiety, depression or self-consciousness than in face-to-face classes (Kappe & van der Flier, 2010). Besides, educators may adopt a variety of assessment methods other than conventional examinations to reduce the impact of test anxiety on students' performance.

Finally, educators and students may also take advantage of the positive impact of Openness to Experience on FBE students' academic performance. Teachers may consider rewarding students who think outside of the box and connect other topics and fields. Besides, teachers may set clear standards and expectations at the beginning of each course that innovative thinking and high effort levels are appreciated. Moreover, teachers may assign students tasks that emphasize the exposure and integration of ideas (Komarraju & Karau, 2005). As for students, they may enhance their Openness to Experience by practising creative thinking and exposing themselves to a broader scale of knowledge in different subjects and fields.

Limitations and suggestions for further studies

There are inevitably several limitations to this study that the authors want to address. Firstly, one should bear in mind the limitations related to the personality instrument used in this study. Although the BFI-2-XS has been proven sufficiently valid and reliable in this study, it may not have captured enough of the individual differences and trait content due to its briefness. The instrument only measures the Big Five personality traits at the primary level; therefore, it is still in question which specific trait facets are directly linked with the academic performance of the target population. In studies with less time and budget constraints, it is recommended that the NEO questionnaires (Costa & McCrae, 1985; Costa Jr & McCrae, 1992) or the Big Five Inventory-2 (Soto and John, 2017b) be utilized for more reliable and valid data on personality. Moreover, the BFI-2-XS measures participants' personalities solely based on their self-perceptions, so the results may be subjective to some extent. It would be more inclusive of using both self-rating and peer-rating personality scales to measure personality traits.

On the other hand, the limitation of the academic performance measure used in this study should also be taken into account. Although GPA is the ultimate academic performance measure in college, students' academic performance can also be assessed by other measures (such as course work and participation). Therefore, there may be speculations about how the results would change if academic performance were measured by other methods. More research using a wider range of academic performance measures is recommended to justify the roles of the Big Five personality traits as academic performance predictors in higher education levels.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article

References

Ackerman, P. L. (1994). Intelligence, attention, and learning: Maximal and typical performance. *Current Topics in Human Intelligence*, *4*, 1-27.

Ackerman, P. L. (1996). Intelligence as process and knowledge: An integration for adult development and application. In W. A. Rogers, A. D. Fisk, & N. Walker (Eds.), *Aging and skilled performance: Advances in theory and applications* (pp. 139-156). Lawrence Erlbaum Associates, Inc.

Blickle, G. (1996). Personality traits, learning strategies, and performance. *European Journal of Personality*, *10*(5), 337-352.

Brand, C. R. (1994). Open to experience-closed to intelligence: Why the 'Big Five' are really the 'Comprehensive Six.' *European Journal of Personality*, *8*(4), 299-310.

Busato, V. V, Prins, F. J., Elshout, J. J., & Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Differences*, *29*(6), 1057-1068.

Chamorro-Premuzic, T., & Furnham, A. (2003a). Personality predicts academic performance: Evidence from two longitudinal university samples. *Journal of Research in Personality*, *37*(4), 319-338.

Chamorro-Premuzic, T., & Furnham, A. (2003b). Personality traits and academic examination performance. *European Journal of Personality*, *17*(3), 237-250.

Choi, N. (2005). Self-efficacy and self-concept as

predictors of college students' academic performance. *Psychology in the Schools*, *42*(2), 197-205.

Conard, M. A. (2006). Aptitude is not enough: How personality and behavior predict academic performance. *Journal of Research in Personality*, *40*(3), 339-346.

Costa, P. T., Jr., & McCrae, R. R. (1985). *The NEO Personality Inventory manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual. Odessa, FL: Psychological Assessment Resources.

De Feyter, T., Caers, R., Vigna, C., & Berings, D. (2012). Unraveling the impact of the Big Five personality traits on academic performance: The moderating and mediating effects of self-efficacy and academic motivation. *Learning and Individual Differences*, *22*(4), 439-448.

De Fruyt, F., & Mervielde, I. (1996). Personality and interests as predictors of educational streaming and achievement. *European Journal of Personality*, *10*(5), 405-425.

De Raad, B., & Schouwenburg, H. C. (1996). Personality in learning and education: A review. *European Journal of Personality*, *10*(5), 303-336.

DeFreitas, S. C. (2012). Differences between African American and European American first-year college students in the relationship between self-efficacy, outcome expectations, and academic achievement. *Social Psychology of Education*, *15*(1), 109-123.

Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, *46*(3), 223-236.

Entwistle, N. J., & Entwistle, D. (1970). The relationships between personality, study methods and academic performance. *British Journal of Educational Psychology*, *40*(2), 132-143.

Eysenck, H. J., & Eysenck, M. W. (1985). *A natural science approach*. Plenum: New York.

Furnham, A., & Chamorro-Premuzic, T. (2004). Personality and intelligence as predictors of statistics examination grades. *Personality and Individual Differences*, *37*(5), 943-955.

Furnham, A., & Medhurst, S. (1995). Personality correlates of academic seminar behaviour: A study of four instruments. *Personality and Individual Differences*, *19*(2), 197-208.

Geramian, S. M., Mashayekhi, S., & Ninggal, M. T. B. H. (2012). The relationship between personality traits of international students and academic achievement. *Procedia-Social and Behavioral Sciences*, *46*, 4374-4379.

Gesell, A. (1926). The mental growth of the pre-school child. *The Journal of Nervous and Mental Disease*, *64*(2), 201-202.

Goff, M., & Ackerman, P. L. (1992). Personality-intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology*, *84*(4), 537-552.

Gore, P. A., Jr. (2006). Academic self-efficacy as a predictor of college outcomes: Two incremental validity studies. *Journal of Career Assessment*, *14*(1), 92-115.

Hair, J., Money, A., Babin, B., & Samouel, P. (2003). *Essentials of business research methods*. Wiley.

Halamandaris, K. F., & Power, K. G. (1999). Individual differences, social support and coping with the examination stress: A study of the psychosocial and academic adjustment of first year home students. *Personality and Individual Differences*, *26*(4), 665-685.

Harackiewicz, J. M., Barron, K. E., Tauer, J. M., & Elliot, A. J. (2002). Predicting success in college: A longitudinal study of achievement goals and ability measures as predictors of interest and performance from freshman year through graduation. *Journal of Educational Psychology*, *94*(3), 562.

Jensen, M. (2015). Personality Traits, Learning and Academic Achievements. *Journal of Education and Learning*, *4*(4), 91-118.

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). Big five inventory. *Journal of Personality and Social Psychology*.

Kappe, R., & van der Flier, H. (2010). Using multiple and specific criteria to assess the predictive validity of the Big Five personality factors on academic performance. *Journal of Research in Personality*, *44*(1), 142-145.

Komarraju, M., & Karau, S. J. (2005). The relationship between the big five personality traits and academic motivation. *Personality and Individual Differences*, *39*(3), 557-567.

Lievens, F., Coetsier, P., De Fruyt, F., & De Maeseneer, J. (2002). Medical students' personality characteristics and academic performance: A five-factor model perspective. *Medical Education*, *36*(11), 1050-1056.

Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: implications for theory and practice. *Studies in Higher Education*, *27*(1), 27-52.

McCrae, R. R., & Costa, P. T. (1985). Updating Norman's "adequacy taxonomy": Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology*, *49*(3), 710-721.

Nguyen, N. T., Allen, L. C., & Fraccastoro, K. (2005). Personality predicts academic performance: Exploring the moderating role of gender. *Journal of Higher Education Policy and Management*, *27*(1), 105-117.

Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in

peer nomination personality ratings. *The Journal of Abnormal and Social Psychology*, *66*(6), 574-583.

Nye, J. V, Orel, E., & Kochergina, E. (2013). Big five personality traits and academic performance in Russian universities. *Higher School of Economics Research Paper No. WP BRP 10/PSY/2013*.

O'Connor, M. C., & Paunonen, S. V. (2007). Big Five personality predictors of post-secondary academic performance. *Personality and Individual Differences*, *43*(5), 971-990.

Partridge, G. E. (1910). *An outline of individual study*. New York: Sturgis and Walton.

Perkins, M. L. (1926). The teaching of ideals and development of the traits of character and personality. *Proceedings of the Oklahoma Academy of Science*, pp. 344-347.

Raza, S. A., & Shah, N. (2017). *Influence of the Big Five personality traits on academic motivation among higher education students: Evidence from developing nation*. Munich Personal RePEc Archive.

Rothstein, M. G., Paunonen, S. V., Rush, J. C., & King, G. A. (1994). Personality and cognitive ability predictors of performance in graduate business school. *Journal of Educational Psychology*, *86*(4), 516-530.

Sanders, W. B., Travis Osborne, R., & Greene, J. E. (1955). Intelligence and academic performance of college students of urban, rural, and mixed backgrounds. *The Journal of Educational Research*, *49*(3), 185-193.

Seman, K., & Ismail, Z. (2019). Big Five personality traits on academic performance among foundation Students. *Asian Social Science and Humanities Research Journal (ASHREJ)*, *1*(2), 28-35.

Seth, N. K., & Pratap, S. (1971). A study of the academic performance, intelligence and aptitude of engineering students. *Education & Psychology Review, 11*(4), 3-10.

Siddiquei, N., & Khalid, R. (2018). The relationship between personality traits, learning styles and academic performance of e-learners. *Open Praxis*, *10*(3), 249-263.

Snyder, C. R., Shorey, H. S., Cheavens, J., Pulvers, K. M., Adams III, V. H., & Wiklund, C. (2002). Hope and academic success in college. *Journal of Educational Psychology*, *94*(4), 820-826.

Soto, C. J., & John, O. P. (2017). Short and extra-short forms of the Big Five Inventory-2: The BFI-2-S and BFI-2-XS. *Journal of Research in Personality*, *68*, 69-81.

Tracey, T. J. G., Allen, J., & Robbins, S. B. (2012). Moderation of the relation between person-environment congruence and academic success: Environmental constraint, personal flexibility and method. *Journal of Vocational Behavior*, *80*(1), 38-49.

Sedlacek, W., & Tracey, T. (1985). The relationship of non-cognitive variables to academic success: A longitudinal comparison by race. *Journal of College Student Personnel*, *26*(5), 405-410.

Trueman, M., & Hartley, J. (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. *Higher Education, 32*(2), 199-215.

Tupes, E. C., & Christal, R. C. (1958). *Stability of personality trait rating factors obtained under diverse conditions* (Vol. 58). Personnel Laboratory, Wright Air Development Center, Air Research and Development Command, United States Air Force.

Vedel, A. (2014). The Big Five and tertiary academic performance: A systematic review and meta-analysis. *Personality and Individual Differences*, *71*, 66-76.

York, T. T., Gibson, C., & Rankin, S. (2015). Defining and measuring academic success. *Practical Assessment, Research, and Evaluation*, *20*(1), Article 5.

Zajacova, A., Lynch, S. M., & Espenshade, T. J. (2005). Self-efficacy, stress, and academic success in college. *Research in Higher Education*, *46*(6), 677-706.

Zeidner, M., & Matthews, G. (2000). Intelligence and personality. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 581-610). Cambridge University Press.