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Relationship between personality traits and academic performance on a Master of Business Administration programme

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Purpose: The main aim of this research was to investigate the relationship between the five-factor model (FFM) personality trait measurements and Master of Business Administration (MBA) academic performance in a triple-crown accredited university in order to assess the effectiveness of current admission systems for a globally accredited MBA degree.

Design/methodology/approach: A quantitative database analysis of the academic records and personality profile scores of MBA graduates was conducted. The sample consisted of 663 participants who successfully graduated from the programme during the period 2014–2019. Their final academic results for their MBA and their FFM personality traits (as measured by the Occupational Personality Questionnaire as part of their admission criteria) were analysed.

Findings/Results: In the correlation analysis, Openness to Experience and Agreeableness had the strongest correlation (positive and negative, respectively) with academic performance. In the regression analysis, Openness to Experience, Conscientiousness and Emotional Stability were identified as the best predictors of performance.

Practical implications: Three per cent of the variance in academic performance was attributable to personality traits. This supports the necessity of further exploring the best predictors of academic performance. Academic institutions may consider re-evaluating their current practice and choice of tests used as part of the admission criteria, and rather focus on assessing and capacitating students in terms of resilience and motivation.

Originality/value: This study adds to the debate regarding the ideal selection criteria for MBA candidates, and indicates that the current selection criteria, also those considered more nuanced and culturally sensitive (e.g. personality assessments), may be flawed.

Keywords: personality; traits; selection; criteria; performance; success; MBA; five-factor model.

Introduction

Selection criteria need to be empirically verified to suitably predict outcomes for a specified context and need to be validated in the environment of their intended use. One such case in point is a graduate business programme, such as the Master of Business Administration (MBA), representing some of the most popular programmes of higher education. These programmes have a potentially significant role to play in society through preparing students for leadership roles in the business environment to have an integral influence in shaping future economic and business growth (Aggarwal, Goodell, & Goodell, 2014, p. 125; Vazquez & Ruas, 2012). Selection criteria for MBA students should have predictive utility for academic and professional performance and success during their studies, as well as after graduation (Schmidt & Hunter, 1998, p. 273). The selection criteria currently being used include a prior suitable National Framework of Qualifications (NFQ) level 8 qualification, work experience and satisfactory selection test results – either an online SHL test or a Graduate Management Admission Test (GMAT). The Saville and Holdsworth Limited (SHL) test consists of verbal and critical reasoning assessments, inductive reasoning and the Occupational Personality Questionnaire (OPQ) on behavioural preferences. Students also need to submit a motivational essay. These criteria may, however, be flawed, and discriminate against certain groups, including those from a different culture, those whose first language is not English, and female applicants, as scores on certain tests tend to favour men, as there is a difference between real trait score differences and biased or conditional trait scores differences. These two differences have different implications for how selection using the construct should proceed.

Whilst the debate is ongoing in research as to the ideal mix of selection factors for MBA candidates, the key objective of selection criteria should be to seek the factors that objectively predict outcome most accurately, and that do not favour certain cultural groups. Traditionally, aptitude tests, such as the GMAT, which assesses analytical writing, integrated reasoning, quantitative reasoning and verbal reasoning, are combined with requirements for a certain number of years of post- or undergraduate work experience, as well as letters of reference (Kotzé & Griessel, 2008, p. 147). Multiple international studies have shown that GMAT results and undergraduate grade point average (UGPA) together were significant predictors of MBA performance and are frequently used in weighted calculations as MBA selection criteria (Ahmadi, Raiszadeh, & Helms, 1997; Gupta & Turek, 2015; Truell, Alexander, & Hill 2006). Similar admission criteria have been observed in South Africa for first-year MBA students (Scholtz & Pienaar, 2018, p. 283). However, Dreher and Ryan (2004, p. 90) raised concerns that the GMAT results can only predict specific key competencies and may therefore deny eligible students admission as a result of overemphasis being placed on GMAT scores. These authors also mentioned concerns about cultural biases, specifically disadvantaging black Africans. This is why cognitive predictors should be supplemented in South Africa with tests of learning potential or culture-free non-verbal assessments (see, e.g., Foxcroft & Roodt, 2018). The controversy regarding the use of the GMAT (Kass, Grandzol, & Bommer, 2012; Pratt, 2015) necessitated a broader perspective on performance, and the search for a more relevant combination of admission criteria. Not only is predictive utility important for the performance and success of the student, but it also impacts graduation and retention rates at universities and is an important determinant of university funding as well as the maintenance of academic standards (Kotzé & Griessel, 2008).

Whilst markers of intelligence are usually a strong predictor of performance, their predictive ability is expected to be improved by the inclusion of other relevant measurements, such as personality traits, whilst simultaneously reducing cultural bias (Hough & Oswald, 2005, p. 378). McCrae and Costa (1987, p. 89, 1992, p. 653) proposed a five-factor model (FFM) for use as a framework for the systematic evaluation of personality traits. The FFM model comprises the following personality traits: Extroversion (E), Agreeableness (A), Openness to experience (O), Conscientiousness (C) and Neuroticism (N) or its polar opposite Emotional Stability (ES) (Costa & McCrae, 1992; Poropat, 2009, p. 322).

Agreeableness refers to compassionate, good-natured, eager-to-cooperate and conflict-avoidant individuals (Pendleton & Furnham, 2008, p. 173). People low in Agreeableness tend to be more competitive and sceptical. Emotional stability (the inverse of Neuroticism) refers to the personality trait of being secure, hardy and relaxed, even under stressful conditions (Pendleton & Furnham, 2008, p. 173). Extroversion refers to individuals who are assertive, outgoing and prefer to be around people. Openness to Experience refers to individuals

with a broad range of interests, imagination and creativity. It is also sometimes seen as an indicator of intelligence (Pendleton & Furnham, 2008, p. 173). This finding (the relationship between extroversion and intelligence) is in agreement with those of Van Aarde, Meiring and Wiernik (2017) and Poropat (2009). Finally, Conscientiousness reflects the tendency to be responsible, organised, hardworking, goal directed and adherent of rules and norms (Pendleton & Furnham, 2008, p. 173)

An important validation of the FFM was provided in the seminal work of McCrae and Costa (1987) with the prevailing view that the FFM model has adequate levels of consensual validity, comprehensiveness, universality and longitudinal stability (Costa & McCrae, 1991). The FFM is also the most widely used validated model of personality traits and is considered fundamental knowledge in the field of psychology (Costa & McCrae, 1992; DeYoung, Quilty, & Peterson, 2007; Goldberg & Saucier, 1995; McCrae & Costa, 2008; McCrae & John, 1992). Personality traits categorised according to the FFM are further viewed as a useful tool in predicting a broad array of social and psychological outcomes (Costa & McCrae, 1992, p. 654). However, the FFM is not free of criticism, with researchers such as Hough and Oswald (2000, p. 637) and Wiernik, Yarkoni and Giordano (2020,p. 1) arguing that the model is inherently too constrained and neglects other important variables and facets (such as emotionality, social competence and core self-evaluation), which strongly correlate with job performance. Furthermore, researchers should embrace the inherent complexity and high dimensionality of human individual differences.

As the mechanism by which personality predicts performance is moderated by many variables, an understanding of how personality influences performance is crucial. Research has shown a substantial overlap between personality, motivation, self-concept and interest measures when predicting various performance metrics (Kanfer, Wolf, Kantrowitz, & Ackerman, 2010, p. 64). The model proposed by Oswald and Hough (2011, p. 161) (see Figure 1) contextualises the influence of situational and other moderator variables' influence on goals and motivation to explain how personality influences performance.

As predictors of performance, cognitive abilities (such as intelligence) are more likely a reflection of an individual's ability, whilst personality traits tend to predict the person's likely behaviour (Barta, Tamás, & Szamosközi, 2018, p. 32). Recent research has demonstrated that personality traits (especially Conscientiousness and Emotional Stability) are useful predictors of critical organisational outcomes, such as team, academic and generalised work performance (Barrick, Mount, & Judge, 2001; Salgado, 1997, p. 36; Van Aarde, 2015, p. 129; Zimmerman, Triana, & Barrick, 2010, p. 376).

Studies have also demonstrated a robust correlation between personality traits (specifically Agreeableness, Conscientiousness and Openness to Experience) and
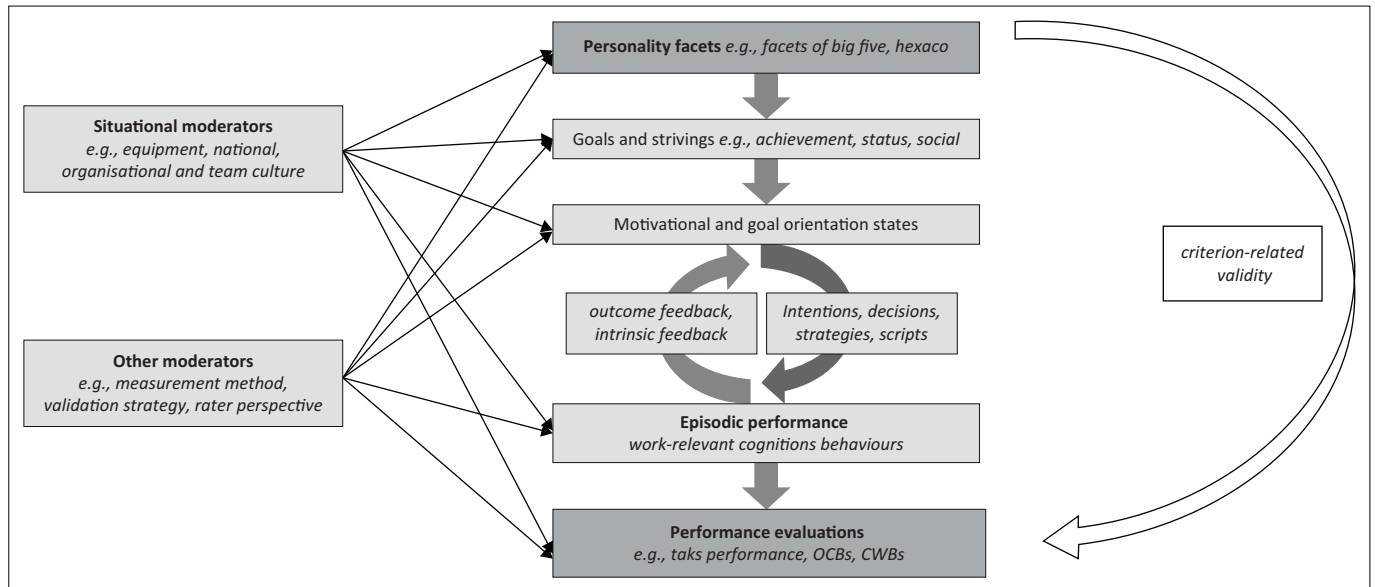
Source: Adapted from Oswald, F.L., & Hough, L.M. (2011). Personality and its assessment in organizations: Theoretical and empirical developments. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology, Vol. 2. Selecting and developing members for the organization* (pp. 153–184). Washington, DC: American Psychological Association. American Psychological Association. Copyright 2011 by American Psychological Association

OCB, organisational citizenship behaviour; CWB, counterproductive work behaviours.

FIGURE 1: Personality-performance relationship variables.

academic performance (Poropat, 2009, p. 331). In a South African sample, a meta-study supported the correlation between Conscientiousness and Extroversion, and tertiary academic performance (Van Aarde, 2015, p. 128). However, a similar study found a negative correlation between Extroversion and performance on an MBA programme (Van Aarde et al., 2017, p. 230). It is possible that this finding may indicate the sensitivity of MBA grades to personality profiles related to social dynamics, such as group work and peer pressure, and those favouring competition, a critical evaluation and information, and willingness to take the lead (Kotzé & Griessel, 2008, p. 152). However, it is important to bear in mind the role of moderator variables. Increasing age and advancement in academic level significantly weaken the correlation of personality traits to academic performance (Laidra, Pullmann, & Allik, 2007; Poropat, 2009, p. 332), with only Conscientiousness still being relevant (Vedel, 2014).

The use of academic performance as a proxy for post-MBA success is supported by Aggarwal et al. (2014, p. 125) who reasoned that as an accredited MBA remains the most sought-after management degree for candidates and employers alike, it is an indication of the effectiveness in enhancing managerial performance post-MBA. In addition to the theoretical argument, practically, measurable academic performance in a triple-crown (Association to Advance Collegiate Schools of Business [AACSB], Association of MBA's [AMBA] and European Foundation for Management Development {EFMD} Quality Improvement System [EQUIS]) accredited MBA programme is an objectively regulated, standardised and quantifiable measure because of the various requirements for accreditation. Therefore, although academic performance is not considered the only significant metric for 'real-world' success, for the purposes of this study, it is a sufficient proxy indicator of post-MBA success.

It is evident that there is scope for the improvement of selection criteria for MBA candidates, with a move away from intelligence tests to more nuanced, refined and culturally sensitive criteria, such as personality traits and the associated moderator variables. Dreher and Ryan (2004, p. 90) specifically call for research to be conducted in the improvement of MBA selection processes, whilst Kotzé and Griessel (2008, p. 154) call for a more refined personality model of candidates who are able to complete the MBA programme with academic success.

Therefore, the main aim of this research was to explore the relationship between the FFM personality trait measurements and MBA academic performance in a South African triple-crown accredited university. This was done to assess the effectiveness of current admission systems for a globally accredited MBA degree and to find potential improvements in the predictive accuracy of academic performance using the personality trait scores of prospective students. A more nuanced understanding of the relationship between personality traits and performance, as well as the predictive accuracy of these traits, could provide improvements to the current selection criteria for prospective MBA students, especially with increasingly diverse student population groupings.

Methodology

A quantitative database analysis of MBA graduates' academic records and personality profiles was conducted. Prior to conducting the research, ethical and institutional approval was obtained. The researchers did not have privy to any contact information or personal identifiers of the participants.

Consent forms were sent out by the alumni office to all MBA business school graduates for the period 2014–2019 to request

inclusion of data in this study. Participants could have completed the degree in any of the module delivery formats: full time, part time or blended. Students who took longer than the minimum allocated time to complete their studies were excluded from participating in the study, as results are capped at 50% for a repeated module or delayed submission, which would skew the results. The total sample consisted of 663 students.

The participants' academic performance results required for the study were captured within the university's database in the Registrar's office. Participants had also completed personality assessments (the SHL's composite FFM scores) as part of their application to the programme – which were captured within the Career Leadership's office. With institutional and ethical approval, both these results were released to an independent faculty member, who matched the academic performance data with the personality trait scores for each student. Subsequently, all personal identifiers were removed before releasing the collated results to the researcher.

Participants' final academic results for their MBA were deemed a suitable measure of academic performance. Each participant's performance score was calculated as the weighted mean score of all of the results obtained for the individual subjects during their MBA. Weighting was calculated according to the number of credits allocated for each for the 18 core modules (based on notional hours needed for completion). As the MBA programme curriculum changed from a 3-year to a 2-year curriculum in 2017, the students who participated were initially grouped into two groups depending on when they have graduated. The sample consisted of 212 students who had completed the 3-year curriculum and 421 who had completed the 2-year curriculum ($n = 633$). Although the curriculum changes were deemed to be minor (e.g. a change in contact sessions and lecturers, credits and notional hours, and reorganising of some content between modules, whilst no major content changes took place), an initial statistical analysis detected between-group differences. Therefore, all further analyses were conducted at group level, as well as with the full sample. Data were also analysed according to the module delivery format of the programme as this influenced the type (in-person vs. online) and frequency (daily, weekly or three monthly) of contact sessions, as well as environmental demands (e.g. being in employment at the time of their studies). Students who followed a specialised stream ($n = 32$) in their final year were excluded from the latter analysis. The sample consisted of 94 full-time, 85 blended and 422 modular students. Variables of interest observed were performance in writing-intensive versus numeric-intensive subjects as it was suspected that some personality traits might show proclivity towards achievement in one domain over another.

Students had completed the self-reported OPQ as part of a selection battery for their admission to the MBA programme. This test is frequently used by leading South African MBA providers (Adendorff & North, 2004) and is deemed to be comprehensive in its measure of personality (Joubert & Venter, 2013, p. 284). There are two versions of the test available: ipsative (OPQ32i) and normative (OPQ32n). Although normative testing is usually preferable in theory, in practice both normative and ipsative measures have been shown to effectively predict performance (Saville, Sik, Nyfield, Hackston, & Maciver, 1996, p. 261). The participants in this sample had completed, as part of their admission procedure, an online self-reported questionnaire in ipsative format, which frames questions as forced choices and displays categorical, individualised results.

The OPQ32 tool measures 32 scales of personality dimensions, of which 26 are used to deduce the FFM personality trait factors. The OPQ used the FFM definitions by Costa and McCrae (1992) as a basis for conceptual mapping of the FFM factors. Internal reliability for the five FFM traits are as follows: Extroversion 0.92, Openness to Experience 0.87, Emotional Stability 0.92, Agreeableness 0.87 and Conscientiousness 0.98 (Bartram, Brown, Fleck, Inceoglu, & Ward, 2006, p. 59). Bartram et al., in the same study, also calculated reliability scores across cultural and gender groups with a median alpha of 0.81 for South Africans.

Bartram et al. (2006, p. 59) also calculated the validity of the FFM factors derived from the OPQ32. They calculated comparative fit indexes (values close to 0.95 indicate a good fit), as well as root mean square error approximations (values equal to or less than 0.08 indicate a good fit). For the five FFM factors, all comparative fit indexes equalled or exceeded 0.95, whilst the root mean square error approximations ranged from 0.07 (Agreeableness) to 0.09 (Extroversion and Openness to Experience).

The criterion validity of the OPQ32 has also been established. The OPQ32 predicts job success, independent of cognitive or other abilities, in a consistent manner across various organisations (Saville et al., 1996). Kotzé and Griessel (2008) showed that 25% of academic success for an MBA sample could be predicted by using a combination of OPQ32 personality scales and numerical ability. The composite FFM traits also correlated well with various competency scales tested for by using the Universal Competency Framework (UCF) 360-degree feedback tool. The UCF scales all show high reliability (> 0.70) across various rater categories (Bartram et al., 2006, p. 163).

Microsoft Excel 365 (version 18.2008.12711.0) was used to calculate descriptive statistics of the overall academic performance, the academic performance per subject, the academic performance per subject type (arithmetic-intensive subjects and writing-intensive subjects) as well as the FFM personality trait scores of the sample. Two-tailed paired sample t-tests were conducted to determine whether there were significant differences between the 3- and 2-year curriculum groups, as well as the three different module delivery formats of the programme. Personal demographic

data, such as age and advancement in academic level (amongst others), are important moderator variables. However, the researchers did not have access to this data. The Statistical Package for the Social Sciences (SPSS) statistical software package (version 27) was used for correlation and regression analyses. Correlation coefficients were calculated for overall academic performance and the FFM personality traits. Both Pearson's and Spearman's rank-order coefficients were used for comparison. Finally, a regression analysis was conducted to establish and evaluate a predictive model for academic performance using the composite FFM personality trait scores.

Ethical considerations

Prior to conducting the research, ethical and institutional approval was obtained from the Departmental Ethics Screening Committee of the University of Stellenbosch Business School (USB-2020-15422). The researchers did not have privy to any contact information or personal identifiers of participants.

Results

Academic performance

The overall academic performance of the sample is depicted in Figure 2. The mean score of the total sample was 68.39%, with a standard deviation (SD) of 6.98%.

To examine the effect of the two moderator variables – the curriculum change and the module delivery format – two-tailed paired sample t-tests assuming unequal variances
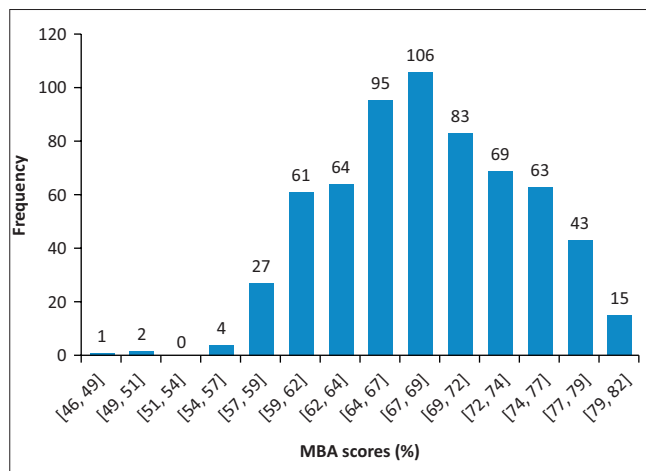

FIGURE 2: Overall academic performance of participants (n = 633).

were conducted. No statistically significant difference was detected between those participants completing the 3-year (mean 68.54%, SD 5.69%) and those completing the 2-year curriculum (mean 68.32%, SD 7.17%). Although the full-time students performed marginally better (mean 69.46%, SD 6.04%) than their blended (mean 67.97%, SD 5.56%) and modular (mean 68.17%, SD 6.10%) counterparts, the difference was not statistically significant.

Personality profiles

Although the mean composite FFM trait scores were similar (see Table 1), the spread was large with a full range of sten scores (1–10) covered as indicated by the standard deviations, thus reflecting the highly diverse student personality profiles.

The participants' Openness to Experience mean scores were slightly higher than the other traits, although the difference was not statistically significant. This may reflect that people who are more open to experience may be more likely to apply to, be accepted into or successfully graduate from an MBA programme.

Once again, two-tailed paired sample t-tests assuming unequal variances were conducted to examine the effect of the curriculum change and the module delivery format. Whilst no differences were detected amongst participants in the different module of delivery formats, there were significant differences in some personality traits between those participants in the 3-year versus the 2-year curriculum in Conscientiousness ($p < 0.001$), Extraversion ($p = 0.006$) and Openness ($p = 0.001$).

Participants who had completed the 3-year curriculum were significantly less conscientious, extraverted and open to experience compared to the participants who had completed the 2-year curriculum.

The correlation between academic performance and five-factor model personality traits

A correlation analysis was conducted to evaluate the relationship between FFM personality traits and academic performance measures, using the Pearson's correlation coefficient (r_p) and the Spearman's rank-order correlation (r_s) (see Table 2).

There were statistically significant negative correlations between ES and the overall academic performance of the

TABLE 1: Five-factor model trait scores of participants (n = 633).

Variable	n	A		C		ES		E		O	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total sample	633	4.98	2.10	4.99	1.85	5.41	2.11	5.09	2.04	6.13	2.11
Three-year curriculum	212	4.34	1.98	4.9	1.76	5.32	1.98	4.78	1.93	5.77	1.92
Two-year curriculum	421	5.30	2.09	5.04	1.90	5.46	2.17	5.24	2.08	6.32	2.17
Full-time	94	5.40	2.26	4.84	2.09	5.03	2.35	5.24	2.11	6.06	2.02
Blended	85	5.14	1.96	5.08	2.11	5.60	2.08	5.06	2.08	5.99	2.27
Modular	422	4.93	2.10	5.00	1.76	5.46	2.07	5.11	2.01	6.18	2.11

A, Agreeableness; C, Conscientiousness; ES, Emotional Stability; E, Extraversion; O, Openness to Experience; SD, standard deviation.

TABLE 2: Correlation between five-factor model trait scores and academic performance.

Traits	Overall academic performance				Writing-intensive subjects				Numeric-intensive subjects			
	r_p	p	r_s	p	r_p	p	r_s	p	r_p	p	r_s	p
A	-0.07	0.08	-0.08	0.06	-0.05	0.21	-0.06	0.14	-0.16	< 0.001	-0.15	< 0.001
C	0.06	0.15	0.06	0.11	0.06	0.12	0.06	0.10	0.03	0.51	0.03	0.39
ES	-0.08	0.05	-0.08	0.05	-0.1	0.02	-0.1	0.02	-0.07	0.06	-0.08	0.06
E	-0.02	0.69	-0.01	0.05	0.03	0.51	0.03	0.44	-0.07	0.03	-0.08	0.05
O	0.11	0.01	0.11	< 0.005	0.16	< 0.001	0.16	< 0.001	0.03	0.52	0.04	0.36

A, Agreeableness; C, Conscientiousness; ES, Emotional Stability; E, Extraversion; O, Openness to Experience; r_p, Pearson correlation coefficient; r_s, Spearman's rank-order correlation.

participants, although less than 1% of the variance in overall academic performance could be attributed to this trait. O had a small but significant correlation with the overall academic performance, but again, only 1% of the variance in performance was attributed to this trait. For writing-intensive subjects, ES again had a negative correlation with performance (with a 1% contribution to the variance in performance), whilst OE contributed to 2.5% in the variance in performance of participants. For arithmetic-intensive subjects, A and E showed significant negative correlations, with 2.5 in the variance in performance of participants attributed to A, whilst E contributed only half a per cent to this variance. It is possible that these small correlations may be an artefact of the ipsative scores of the instrument used.

Five-factor model personality traits as predictor variables of performance

Finally, two regression analyses were performed with the aim of developing a model, which may add predictive accuracy to personality traits used as admission criteria for future MBA performance.

In the first analysis, all five FFM traits were included in the regression model. This yielded a result that explained 3.75% of the variance seen in the MBA scores ($R = 0.19$, $p = 0.0002$, Standard error of estimate (SEE) 5.92).

In this model, the contribution of Agreeableness and Extroversion to the regression analysis did not reach a level of significance. The residuals were investigated for heteroscedasticity with the Breusch–Pagan method and for serial autocorrelation with the Durbin–Watson test. Collinearity of the independent variables (predictor variables) was investigated with a redundancy analysis. The variation inflation factor (VIF) measures how much the behaviour, or variance, of an independent variable is influenced by its interaction with other independent variables. When applied to this data, the VIF numbers ranged between 1.07 and 1.37 for all traits, indicating minimal correlation. A normality test of the residuals determines whether sample data have been drawn from a normally distributed population, and this was confirmed, as the residual plot approached a straight line (see Figure 3). The Durbin–Watson test on this data yielded an estimate of 2.10, indicating an absence of auto-correlation and confirming the constant variance of the model. However, some of the predictor variables (A and E) were found to be statistically insignificant, whilst the tolerance levels of some traits (ES, E and O) were also not exceeding 0.9, as generally recommended.
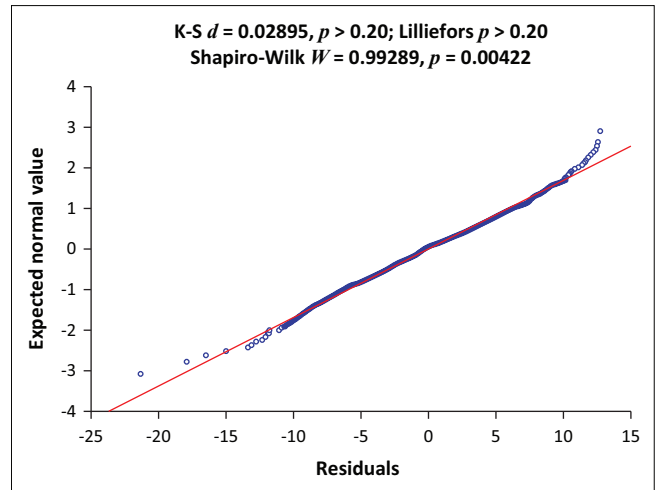
FIGURE 3: Normal probability plot of the residuals.

TABLE 3: Regression summary for overall academic performance as dependent variable ($n = 633$).

Regression variable	b^*	SE of b^*	b	SE of b	T (627)	p
Intercept	-	-	66.11	1.08	61.26	< 0.001
C	0.10	0.04	0.34	0.13	2.55	0.01
ES	-0.13	0.04	-0.38	0.12	-3.23	0.001
O	0.15	0.04	0.43	0.12	3.72	< 0.001

ES, Emotional Stability; O, Openness to Experience; C, Conscientiousness; SE, standard error.

A second regression analysis was conducted to find the best combination of predictor variables (FFM traits) for the overall academic performance scores. Based on the findings of the correlation analysis, the O, A and ES were expected to be the three best predictor variables. However, regression analysis indicated that C, ES and O were the best predictor variables explaining 3.28% of the variance seen in the MBA scores ($R = 0.18$, $p = 0.0001$, SEE 5.92) (see Table 3).

The redundancy of the personality traits was minimal, as shown by the Variance Inflation Factor number ranging between 1.08 and 1.11 for all traits. The normality of the model was also accepted as the residual plot approached a straight line (see Figure 4). There was no autocorrelation present between the residuals (Durbin–Watson = 2.10), which confirmed the absence of autocorrelation and constant variance of the model.

Although the second regression model explained slightly less of the variance in academic performance than the first model, the tolerance values were consistently higher for the
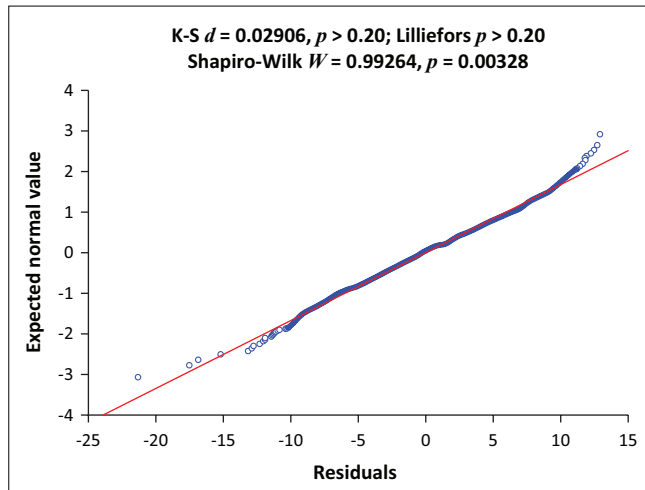
K-S $d = 0.02906$, $p > 0.20$; Lilliefors $p > 0.20$
Shapiro-Wilk $W = 0.99264$, $p = 0.00328$

FIGURE 4: Normal probability plot of the residuals.

second regression model, with all variables >0.9 and all its predictors being significant at 95% confidence level. Therefore, the best regression model, although it explains slightly less variation, is considered the second regression model, which used C, ES and O as predictor traits.

Discussion

It is interesting to note the difference in the personality profiles of participants who completed the 2-year versus the 3-year curriculum, and this could be because of many variables relating to the university, this specific programme and the applicants themselves. It is possible that the university's marketing strategy regarding the MBA programme may have changed over time, or the view of the 'best fit' candidate may also have changed over time and with experience.

Although expecting to find that full-time students perform better in general than their part-time counterparts, this study detected no statistically significant difference between the different module delivery formats. Full-time students may have the advantage of receiving more contact time with lecturers; their classes may be smaller, and they may have fewer external responsibilities. However, the modular and blended groups may be bigger, resulting in more diversity in discussions during sessions, which is advantageous. In addition, the modular and blended students are usually more senior in age, work experience and academic careers, which may be advantageous. Finally, in the blended and modular delivery formats, course material is spread out over a longer period, which implies the information is revisited more frequently and can be more readily absorbed and embedded.

There are interesting findings regarding personality profiles' correlation with and predictive ability on academic performance. In the correlation analysis, Openness to Experience and Agreeableness had the strongest correlation with academic performance. However, in the regression analysis, Openness to Experience, Conscientiousness and Emotional

Stability were identified as the best predictors of performance.

People who scored low in Agreeableness tend to be more competitive and sceptical. They may have a greater tendency to think independently, be more analytical and deliberate and tend to scrutinise for discrepancies. These attributes may lead to the provision of more accurate answers and better arithmetic scores and may explain the negative correlation Agreeableness had with numeric-intensive subjects. In this sample, Conscientiousness did not correlate with academic performance, and Emotional Stability had a negative correlation with performance. This is in contrast to earlier studies (Barrick et al., 2001; Salgado, 1997, p. 36; Van Aarde, 2015, p. 129; Vedel, 2014; Zimmerman et al., 2010, p. 376) that showed both these traits improve team, academic and generalised work performance. In a study by Poropat (2009, p. 328), the authors found a negative correlation between Conscientiousness and intelligence. It is therefore possible that students who are naturally intellectually stronger may have worked less than their peers to achieve higher scores in their pre-graduate studies – which is the academic grades submitted as part of their application for admission into the MBA programme. Group work dynamics could also be at play as students who scored higher in Conscientiousness could potentially be the main contributors to the group assignments, leaving less time and energy available for them to achieve high scores on individual tasks. The less Conscientious students may have benefitted from this contribution, and achieved higher scores than they may have normally. Alternatively, the more Conscientious person may be less prone to seeking assistance from teammates during group work.

Higher scores in Emotional stability may be attributed to the detriment of students' academic performance if they do not experience the demands and deadlines to be sufficiently stressful. This may cause them not to put in the extra effort required for good results.

The present study supported the negative correlation between Extroversion and performance on an MBA programme (Van Aarde et al., 2017, p. 230). Participants high in Extroversion may do well in group work, but may struggle in subjects that rely more on individual assessments. This may explain the negative impact on arithmetic-intensive subjects and overall performance. Van Aarde et al. (2017) also opined that those high in Extroversion often lacked the focus required to perform their tasks. The negative impact of Extroversion on performance is also in agreement with the findings of Barrick et al. (2001, p. 14), who demonstrated a weak negative correlation with professional performance.

Finally, the only FFM trait having a positive correlation with performance (both overall and writing-intensive subjects) was Openness to Experience. This finding is in agreement with those of Van Aarde et al. (2017) and Poropat (2009). This trait may enable participants to easily integrate perspectives from

both peers and class facilitators, as well as new information and information that is conflicting with their existing world view. High scores could indicate a greater interest in the academic material and exercises, resulting in a drive to perform well academically. It is also possible that the nature of the MBA presented at this university favours those students high in Openness to Experience, as they are intentionally exposed to a curriculum containing a wide variety of perspectives to challenge pre-existing paradigms that may have existed before enrolment into an MBA programme.

It has been noted that context and situational factors play a role in the influence of personality traits on performance outcomes (Hough & Oswald, 2005, p. 379). A potential limitation of the present study is the lack of inclusion of moderator variables, such as the contribution of group versus individual work to performance, the age and academic advancement of participants (both of which have been shown to weaken the correlation of personality traits to academic performance) (Laidra et al., 2007; Poropat, 2009, p. 332) and external environmental responsibilities and stressors. A second potential limitation is the range restriction within the current data analysis. To fully appreciate if personality constructs can predict variance in performance, it would be interesting to include and compare the results with participants who were not selected for the programme. Finally, an empirically and theoretically well-founded structural model that includes cognitive and non-cognitive variables, which specifies the mediating and moderating variables, would prove to be more successful in identifying the role of various predictors of MBA success. In order to prevent measurement bias with respect to the different cultural groups, the measurement equivalence of the identified measures will, however, also have to be determined.

Conclusion

Traditionally, intelligence scores have been considered the most important, and often the only quantitative predictor variables tested for during the screening of MBA programme applicants. An updated mix of variables may increase the predictive ability of existing models and potentially reduce the cultural biases of current admission tests. This study sought to critically evaluate the use of personality traits as potential predictors of MBA performance. Specifically investigated was the relationship between the FFM of personality traits of MBA students and their subsequent academic performance during their MBA course. Openness to Experience consistently correlated with and predicted academic performance. Intuitively, and from previous studies, it was expected that Conscientiousness and Emotional Stability would have a positive impact on performance. However, Emotional Stability was a significant negative predictor of performance – which may indicate that students who experience healthy levels of stress because of the demands of the programme may perform better than their less stressed counterparts. These findings are important: on an academic level, it showed that a mere 3% of the variance in academic performance could be attributed to personality traits in the limited sample considered in this study. This may indicate

the necessity of further studies on personality traits' correlation with MBA performance and/or exploring alternative predictors of MBA performance. On a practical level, academic institutions may consider the results of this study if they need to revise the admission criteria to their MBA programmes. Other selection criteria to investigate could include undergraduate performance and work-related performance metrics and successes. A further recommendation for future research is to evaluate other moderator variables, which can potentially improve academic outcome, such as students' resilience – that is, the ability to persevere, even when faced with challenges, and motivation – that is, the ability to direct actions towards obtaining a specific goal. Even if these variables have not yet been proven, or specifically evaluated in this study, as a significant predictor of performance, it is an important life skill to possess, and can greatly enhance students' lives personally, professionally and whilst completing the programme.

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