Prestige Journal of Counselling Psychology, Vol. 4, No. 1, March 2021 ISSN: 2651-5687 (Print)
A publication of the Association for the Promotion of Innovation in Education (APIE) ISSN: 2651-5709 (Online)

Personality Traits and curriculum implementation as correlates of Secondary School Students' Academic Performance in North-West Geo-Political Zone of Nigeria

[1]**Lawal Garba Sani**
Department of Curriculum and Instruction
lawalgsani63@gmail.com

[1]**Yusuf Yahaya Maina**
Department of Educational Psychology
yusufmaina09@gmail.com
[1]*Federal College of Education, Zaria*

Abstract
This study investigated personality traits as predictors of secondary school students' academic performance in senior secondary in North-West Geo-Political Zone of Nigeria. The Big Five Personality Inventory was used to measure the personality variables while the first term examination of senior secondary school result was used to measure the academic performance of the students. One thousand, two hundred senior secondary school students were sampled from Kaduna and Kano States. Five hypotheses guided the study. Pearson Product Moment Correlation was used to test the hypotheses at 0.05 level of significance. The results revealed that there was a significant relationship between the big five factors (extraversion, agreeableness, conscientiousness, emotional stability and openness to experience) and academic performance of secondary school students. It was recommended that students should exact their selves to learning so as to perform well in the schools.
Keywords: Personality, Traits, Academic, Performance, Students

Introduction

Academic performance is a multifaceted construct that encompasses different domains of learning and covers broad variety of educational outcomes; the measuring can occur at different levels and serves multiple purposes. Thus, many criteria are used in measuring academic performance of students or learners depending on the educational level of the learner in question. Such criteria include the grade system used to measure performance in test, the cumulative indicators of academic achievement (GPA) used in degrees and certificate programme in higher institutions of learning and the position and average used in primary and secondary schools in Nigeria.

The broad varieties of criteria used to measure academic performance reveal its centrality and importance in the business of education. Among such importance is that its mirrors the intellectual capacity of an individual. It defines whether an individual has the ability and requirements to enrol, or is qualified to apply for further studies, and the grades one obtains may influence one's employability or career after graduation. Furthermore, academic performance is one of the indices used to measure the prosperity of a nation.

Personality variables have predictive value on the academic performance of students based on the different component of personality based on the five factors model of personality. Put simply, the Five-Factor Model (FFM) includes the most frequently appearing lexical personality dimensions on which people vary (Poropat & Corr, 2015). These dimensions can be summarized as: agreeableness (reflecting qualities of being friendly, modest, and accommodating); conscientiousness (dutiful, diligent, and orderly); emotional stability (relaxed, balanced, patient), though often denominated by its opposite pole, neuroticism (moody, ruminating, irritable); extraversion (outgoing, sociable, active); and openness (curiosity about and tolerance for diverse cultural and intellectual experiences), sometimes denoted intellect.

Encompassing facets such as achievement striving and self-discipline, conscientiousness has much in common with Webb's *w* factor, and conscientiousness is indeed the FFM factor showing the strongest correlations with academic performance (Poropat, 2009; Richardson, Abraham & Bond, 2012). Conscientiousness consistently predicts grades in primary, secondary, and tertiary academic education, rivalling intelligence (r = .21: Richardson et al., 2012) in predictive validity in tertiary education (r = .23: Richardson et al., 2012). These correlations are substantially stronger when conscientiousness has been rated by a knowledgeable other-rater, such as students' parents, peers and teachers, both in primary education (r = .50: Poropat, 2014a) and in secondary and tertiary education (r = .38: Poropat, 2014b).

Apart from conscientiousness, openness is the FFM factor most strongly associated with academic performance (Poropat, 2009, 2014a, 2014b; Richardson et al., 2012). In primary education, self-rated openness is almost equally effective as conscientiousness in statistically predicting academic performance, though less effective in secondary and tertiary education (Poropat, 2009). However, as with other-rated conscientiousness, other-rated openness is more closely linked with academic performance than is intelligence, at least in secondary and tertiary education (r = .28: Poropat, 2014b).

Among the FFM dimensions, openness is probably the most complicated and certainly the most highly debated. The reason for this indeterminacy is that the openness factor

includes both a creative component reflecting artistic and contemplative interests, and an intellect component that reflects curiosity and approach to learning. It is the intellect-curiosity component in particular that drives the correlations between openness and academic performance (von Stumm, Hell & Chamorro-Premuzic, 2011), and the intellect-curiosity component also seems to account for the correlations between openness and intelligence consistently found (Goff & Ackerman, 1992). Individuals who score more highly on openness tend to seek out and enjoy new and cognitively stimulating activities, apparently resulting in cognitive growth and accumulation of knowledge. As such, openness, and especially the intellect aspect of openness, belongs among the "intellectual investment traits".

Research on motivational constructs supports the notion that openness facilitates academic performance partly through self-imposed "intellectual investment". Students who are high on openness are more curious and investigative, more intrinsically motivated to know, think, and analyze, and more interested in improving mental abilities and increasing competencies (Clark & Schroth, 2010; Komarraju & Karau, 2005; Komarraju, Karau & Schmeck, 2009). Such students also tend to have a deep learning approach (Chamorro-Premuzic & Furnham, 2009) and reflective learning styles and learning strategies, such as elaborative processing and critical thinking (Komarraju, Karau, Schmeck & Avdic, 2011), all of which have been shown to mediate the relationship between openness and academic performance (Komarraju et al., 2011). Additionally, openness is the FFM factor most strongly associated with learning goal orientation (Payne, Youngcourt & Beaubien, 2007). Learning goal orientation is itself reliably associated with academic performance, and also mediates the relationship between openness and academic performance (Richardson et al., 2012). These motivational aspects to openness appear to affect not only short-term academic outcomes: openness also predicts overall educational attainment, such that individuals who are high on openness are more likely to achieve a high educational level during their lives (Costa et al., 1986).

Self-rated agreeableness has positive correlations with academic performance (Poropat, 2009; Richardson et al. 2012), but these correlations are modest except in primary education (r = .30: Poropat, 2009). When other-rated, correlations between agreeableness and academic performance are unaffected by level of education, but remain relatively modest (r = .09: Poropat, 2014a; r = .10: Poropat, 2014b). Agreeableness is associated with accommodating and cooperative attitudes towards the social environment and a compliant response to social demands. As such, the agreeable student's desire to "get along" with others (e.g. teachers and parents) manifests itself in academic motivation and in behaviours aimed at improving academic performance, predominantly through surface learning. Likewise, agreeableness is associated with extrinsic types of academic motivation, meaning that

more agreeable individuals tend to choose to identify with and integrate socially accepted values they meet in academia, leading more agreeable students to value academic performance because it is the socially accepted value in educational settings (Clark & Schroth, 2010; Komarraju et al., 2009). Consistent with this, agreeableness has been associated with academic persistence motivation, interest in self-improvement, and grades orientation (Komarraju & Karau, 2005).

In primary education, there is a noteworthy association between self-rated emotional stability and academic performance (r = .20: Poropat, 2009), but in secondary and tertiary education this correlation is negligible (r = .01 and -.01, respectively: Poropat, 2009). However, as with agreeableness, correlations between academic performance and other-rated emotional stability remain stable across educational levels (r = .18 at all levels: Poropat, 2014a, 2014b). This difference in correlations appears to be due to the fact that emotional stability is the FFM dimension that is most subject to rater biases (Poropat & Corr, 2015).

Emotional stability encompasses a relaxed and calm mode of feeling, thinking, and behaving, and it is a robust predictor of subjective well-being. Emotionally stable individuals have lower levels of negative affect and higher quality of life, and they are less prone to suffer from psychological disorders (Kotov, Gamez, Schmidt & Watson, 2010). Emotional stability is also associated with performance self-efficacy (Judge & Ilies, 2002), which in turn is strongly predictive of academic performance (r = .59: Richardson et al., 2012). In light of this, one might expect that emotional stability would translate into purely positive motivations and outcomes in academia. However, the relationship between emotional stability and academic performance has proven to be more complex. Demonstrating this complexity, more emotionally stable individuals are more likely to wilfully focus on and learn from errors and employ learning styles and strategies conducive to academic performance in general, such as analyzing, organizing, and integrating new material with previous knowledge (Komarraju et al., 2011; Lubbers, Van Der Werf, Kuyper & Hendriks, 2010). However, emotional stability is also associated with being less likely to rehearse material, and more emotionally stable students allocate less time to homework (Lubbers et al., 2010). Adding to this complexity, low levels of emotional stability are associated with academic amotivation, debilitating anxiety, withdrawing, and feeling discouraged about school (Clark & Schroth, 2010; Komarraju & Karau, 2005; Komarraju et al., 2009), but also with an orientation towards achieving good grades (Komarraju & Karau, 2005). The latter possibly reflects fear of failure, since low emotional stability is associated with goals of avoiding negative evaluations and the perception of incompetence relative to others (Payne et al., 2007). So, it appears that because individuals who are higher on emotional stability are less motivated by such avoidance goals, they are less inclined to spend time on homework and rehearsal.

Extraversion has only modest correlations with academic performance overall (Poropat, 2009; Richardson et al., 2012) with the strongest relationship being between self-rated extraversion and academic performance in primary education (r = .18: Poropat, 2009). Correlations of other-rated extraversion with academic performance in primary (r = .11: Poropat, 2014a) and secondary and tertiary education (r = .05: Poropat, 2014b) are also relatively modest when compared with the other FFM dimensions. So, extraversion has some relevance to academic performance, but care should be taken to avoid over-interpreting these modest associations.

However, extraversion has been reliably linked with a range of learning-relevant variables. More extraverted individuals generally have higher subjective well-being such as positive affect and quality of life, most likely due to the creation of positive life experiences facilitated by the sociability component of extraversion (Steel et al., 2008). This sociability, assertiveness, and active engagement with the social environment characterizing extraverted individuals may be beneficial for learning that involves frequent interactions with teachers or peers. Consistent with this, more extraverted students are better at seeking help from peers and instructors, when they encounter learning difficulties. This enables better understanding, but it also makes the student more visible to the teacher (Poropat, 2014a). Being visible can have a positive effect on the student's academic standing, because teachers in primary education, where interaction between students and teachers is most frequent, have the tendency to perceive shy children as less intelligent and less academically gifted than their more talkative counterparts (Coplan, Hughes, Bosacki & Rose-Krasnor, 2011). This may explain the positive association between extraversion and academic performance found at this educational level. However, these same characteristics of sociability and orientation towards the social environment may also pose a challenge to the extraverted student. Students who are high on extraversion are generally more academically motivated and have higher learning goal orientation (Clark & Schroth, 2010; Payne et al., 2007), but they are also motivated to spend time with friends, participate in societies and events, explore the social environment, etc. This sociability-induced distractibility may partly explain why the association between extraversion and academic performance is reduced at higher academic levels, where students have more responsibility for their own learning.

Curriculum is the sum total of all the experiences provided to the learners under the guidance of the school (Bondi & Wiles, 2007). Curriculum implementation entails putting into practice the officially prescribed courses of study, syllabuses and subjects. The process involves helping the learner acquire knowledge or experience. It is important to note that curriculum implementation cannot take place without the learner. The learner is therefore the central figure in the curriculum implementation process. Implementation takes place as the learner acquires the

planned or intended experiences, knowledge, skills, ideas and attitudes that are aimed at enabling the same learner to function effectively in the society.

Viewed from this perspective, curriculum implementation also refers to the stage when the curriculum itself, as an educational programme, is put into effect. Putting the curriculum into operation requires an implementing agent. The teacher is seen as the agent in the curriculum implementation process. Implementation is the manner in which the teacher selects and mixes the various aspects of knowledge contained in a curriculum document or syllabus. Implementation takes place when the teacher-constructed syllabus, the teacher's personality, the teaching materials and the teaching environment interact with the learner. Curriculum implementation therefore refers to how the planned or officially designed course of study is translated by the teacher into syllabuses, schemes of work and lessons to be delivered to students (George, 1995).

Statement of the Problem

Academic performance of students in the Nigerian Educational system is a serious concern to all stakeholders in the educational enterprise. This is because parents, teachers, school heads and the government are concerned with poor performance of student. Bearing this in mind, this study examined how personality variables will predict the academic performance of senior secondary school students in North-West Geopolitical Zone of Nigeria.

Objectives of the study

The main objective of this study was to find out how personality variables and curriculum implementation predicted academic performance of senior secondary school students in the North-West Geopolitical Zone of Nigeria.

Hypotheses

The following hypotheses were formulated to guide the study:

Ho1: There is no significant relationship between Extraversion and Academic performance of secondary school students.

Ho2: There is no significant relationship between Agreeableness and academic performance of secondary school students.

Ho3: There is no significant relationship between Conscientiousness and academic performance of secondary school students.

Ho4: There is no significant relationship between Emotional Stability and academic performance of secondary school students.

Ho5: There is no significant relationship between Openness to Experience and academic performance of secondary school students.

Ho6: There is no significant relationship between curriculum implementation and academic performance of secondary school students.

Methodology

A correlational research design was adopted for this study. The population for this study comprise of all the senior secondary school students in North West Geopolitical Zone of Nigeria. A sample of forty-two secondary schools in the three selected states namely: Kaduna, Jigawa and Kebbi in the North West Geopolitical Zone of Nigeria was used for the study. The sample comprises of one thousand and two hundred (1,200) SS II students randomly selected from the forty-two secondary schools in the three selected states. Two instruments were used for this study. The big five inventory (BFI) and the Curriculum Implementation Questionnaire. The Curriculum Implementation Questionnaire was constructed by the researchers and consists of fifteen items (15). The BFI instrument used was adopted from John and Srivastava (1999). It consists of 44 items, with a five likert scale of Strongly Agree, Agree, Neither Agree, Disagree and Strongly Disagree, with the scoring guide: ("R" denotes reverse-scored items): Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36; Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42; Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R; Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39 and Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44 respectively. The instrument was validated, both face and contents validity, by professionals in the fields of Measurement and Evaluation, and Educational Psychology and Counselling from Ahmadu Bello University, Zaria. The reliability of the instrument was found, and the internal consistency was satisfactory for the Neuroticism, Extraversion, and Openness to Experience, Agreeableness, and Conscientiousness subscales respectively (Cronbach's alpha = 0.83, 0.82, 0.79, 0.82, 0.90). Pearson Product Moment Correlation (r) was used to test the study hypotheses at 0.05 level of significance.

Presentation of results

Ho1: There is no significant relationship between Extraversion and Academic performance of secondary school students.

Table 1: Correlation analysis on extraversion and students' academic performance

Variable	N	Mean	SD	r	df	Sig.
Academic Performance	1,200	132.2	21.00	0.817**	1,198	.000
Extraversion	1,200	48.68	8.12			

** Correlation is significant at the 0.05 level (2-tailed).

The correlational analysis in table 1 on the relationship between academic performance and extraversion of students revealed a significant positive relationship between them. This is because the calculated P value of 0.000 is lower than the 0.05 alpha level of significance at a correlation index r level of 0.817 at df of 1,198. This shows that academic performance is positively related to extraversion of students.

Ho2: There is no significant relationship between agreeableness and academic performance of secondary school students.

Table 2: Correlation Analysis on Agreeableness and Students' Academic Performance

Variable	N	Mean	SD	r	df	Sig.
Academic Performance	1,200	132.2	21.00	0.788**	1,198	.000
Agreeableness	1,200	45.23	9.10			

** Correlation is significant at the 0.05 level (2-tailed).

The result in table 2 showed that there is a significant relationship between academic performance and agreeableness of students. This is because the calculated P value of 0.000 is lower than the 0.05 level of significance at a correlation index r level of 0.788 at df of 1,198. This shows that agreeableness significantly relates with academic performance of secondary school students.

Ho3: There is no significant relationship between conscientiousness and academic performance of secondary school students.

Table 3: Correlation analysis on conscientiousness and students' academic performance

Variable	N	Mean	SD	r	df	Sig.
Academic Performance	1,200	132.2	21.00	0.628**	1,198	.000
Conscientiousness	1,200	46.00	9.65			

** Correlation is significant at the 0.05 level (2-tailed).

The result in table 3 shows that a significant relationship exists between conscientiousness and academic performance of students. This is because the calculated P value of 0.000 is less than the 0.05 alpha level of significance at a correlation index r level of 0.628 at df of 1,198. This shows that academic performance positively correlates with conscientiousness of students.

Ho4: There is no significant relationship between emotional stability and academic performance of students.

Table 4: Correlation analysis on emotional stability and students' academic performance

Variable	N	Mean	SD	r	df	Sig.
Academic Performance	1,200	132.2	21.00	0.758**	1,198	.000
Emotional Stability	1,200	47.00	10.00			

** Correlation is significant at the 0.05 level (2-tailed).

The result in table 4 shows that a significant relationship exists between emotional stability and academic performance of students. This is because the calculated P value of 0.000 is less than the 0.05 alpha level of significance at a correlation index r level of 0.758 at df of 1,198. This shows that academic performance positively correlates with emotional stability of students.

Ho5: There is no significant relationship between openness to experience and academic performance of students.

Table 5: Correlation analysis on openness to experience and students' academic performance

Variable	N	Mean	SD	r	df	Sig.
Academic Performance	1,200	132.2	21.00	0.593**	1,198	.000
Openness to Experience	1,200	41.44	7.17			

** Correlation is significant at the 0.05 level (2-tailed).

The result in table 5 showed that there is a significant relationship between academic performance and openness to experience of students. This is because the calculated P value of 0.000 is lower than the 0.05 level of significance at a correlation index r level of 0.593 at df of 1,198. This shows that openness to experience significantly relates with academic performance of secondary school students.

Ho6: There is no significant relationship between curriculum implementation and academic performance of secondary school students.

Table 6: Correlation analysis on curriculum implementation and students' academic performance

Variable	N	Mean	SD	r	df	Sig.
Academic Performance	1,200	132.2	21.00	0.453**	1,198	.001
Curriculum implementation	1,200	25.23	3.68			

** Correlation is significant at the 0.05 level (2-tailed).

The result in table 6 showed that there is a significant relationship between academic performance and curriculum implementation. This is because the calculated P value of 0.001 is lower than the 0.05 level of significance at a correlation index r level of 0.453 at df of 1,198. This shows that curriculum implementation significantly relates with academic performance of secondary school students.

Discussion of findings

The findings of the study showed that extraversion significantly correlates with academic performance of students. This implies that there is a positive relationship between extraversion and academic performance of students. In essence, it shows that extraversion exerts positive influence on students' academic performance. This study tends to agree with the findings of Poropat (2009) who found a strong relationship between extraversion and academic performance.

The result in table 2 showed a positive correlation between agreeableness and students' academic performance. The implication of this is that the more the students agrees with other students in the class and the teachers, this will enhance their academic performance. This finding agrees with Poropat (2009) and Richardson et al (2012) who observed that self-rated agreeableness has positive correlations with academic performance.

Furthermore, the study also revealed in table 3 that conscientiousness has a positive relationship with academic performance of students. This shows that students who are conscientious in their study tends to excel in their studies. This finding is in line with the work of Richardson (2012) who observed that conscientiousness consistently predicts grades in primary, secondary, and tertiary academic education, rivalling intelligence.

The result in table 4 indicated that emotional stability has a positive relationship with academic performance of students. This implies that there is a positive relationship between emotional stability and students' academic performance. In essence, it shows that emotional stability exerts positive influence on students' academic performance.

This goes on to show that the more students concentrate on his or her studies, the better their performance. The findings of this study aligned with that of Poropat (2009) who discovered an association between self-rated emotional stability and academic performance of students.

Result in table 5 revealed that openness to experience has a positive relationship with academic performance of students. This indicated a positive relationship between openness to experience and students' academic performance. Von Stumm, Hell and Chamorro-Premuzic (2011) found that intellect-curiosity component in particular drives the correlations between openness and academic performance.

Finally, result in table 6 revealed that curriculum implementation has a positive relationship with academic performance of students. This finding affirms George's (1995) description of curriculum implementation as how the planned or officially designed course of study is translated by the teacher into syllabuses, schemes of work and lessons to be delivered to students.

Conclusion

Students' academic performance is considered as an indicator of quality education and personality variables are the determinants of students' academic performance. Students' extraversion is a predictor of their academic performance as revealed in this study. It was also revealed that agreeableness has positive correlation with students' academic performance and likewise, conscientiousness, emotional stability and openness to experience.

Recommendations

Students should exact their selves to learning so as to perform well in the schools. They should also agree with other students in the class and learn together by sharing ideas because two heads, they say, are better than one. They should also be open to one another to get the maximum benefit of education in their class.

References

Bondi, J. & Wiles, J. (2007). *Curriculum Development, a guide to practice*. Columbia, Ohio: Met Hill Prentice Hall.

Chamorro-Premuzic, T. & Furnham, A. (2009). Mainly openness: The relationship between the big five personality traits and learning approaches. *Learning and Individual Differences, 19*(4), 524-529. doi: 10.1016/j.lindif.2009.06.004.

Clark, M. H. & Schroth, C. A. (2010). Examining relationships between academic motivation and personality among college students. *Learning and Individual Differences, 20*(1), 19-24. doi: 10.1016/j.lindif.2009.10.002

Coplan, R. J., Hughes, K., Bosacki, S. & Rose-Krasnor, L. (2011). Is silence golden? Elementary school teachers' strategies and beliefs regarding hypothetical shy/quiet and exuberant/talkative children. *Journal of Educational Psychology, 103*(4), 939-951. doi: 10.1037/a0024551

Costa, P. T. Jr., McCrae, R. R., Zonderman, A. B., Barbano, H. E., Lebowitz, B. & Larson, D. M. (1986). Cross-sectional studies of personality in a national sample II: stability in neuroticism, extraversion, and openness. *Psychology and Aging, 1*(2), 144-149. doi: 10.1037/0882-7974.1.2.144.

George, B. (1995). *Curriculum Development: A text book for Students*. Nairobi: Macmillan Education Limited.

Goff, M. & Ackerman, P. L. (1992). Personality-intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology, 84*(4), 537-552. doi: 10.1037/0022-0663.84.4.537

Judge, T. A. & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology, 87*(4), 797-807. doi: 10.1037/0021-9010.87.4.797

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. doi: 10.1016/j.paid.2005.02.013

Komarraju, M., Karau, S. J. & Schmeck, R. R. (2009). Role of the big five personality traits in predicting college students' academic motivation and achievement. *Learning and Individual Differences, 19*(1), 47-52. doi: 10.1016/j.lindif.2008.07.001

Komarraju, M., Karau, S. J., Schmeck, R. R. & Avdic, A. (2011). The big five personality traits, learning styles, and academic achievement. *Personality and Individual Differences, 51*(4), 472-477. doi: 10.1016/j.paid.2011.04.019.

Kotov, R., Gamez, W., Schmidt, F. & Watson, D. (2010). Linking "big" personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychological Bulletin, 136*(5), 768-821. doi: 10.1037/a0020327

Lubbers, M. J., Van Der Werf, M. P., Kuyper, H. & Hendriks, A. A. (2010). Does homework behaviour mediate the relation between personality and academic performance? *Learning and Individual Differences, 20*(3), 203-208. doi: 10.1016/j.lindif.2010.01.005

Payne, S. C., Youngcourt, S. S. & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology, 92*(1), 128-150. doi: 10.1037/0021-9010.92.1.128

Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin, 135*(2), 322-338. doi: 10.1037/a0014996

Poropat, A. E. (2014a). A meta-analysis of adult-rated child personality and academic performance in primary education. *British Journal of Educational Psychology, 84*(2), 239-252. doi: 10.1111/bjep.12019

Poropat, A. E. (2014b). Other-rated personality and academic performance: Evidence and implications. *Learning and Individual Differences, 34*, 24-32. doi: 10.1016/j.lindif.2014.05.013

Poropat, A. E. & Corr, P. J. (2015). Thinking bigger: The Cronbachian paradigm & personality theory integration. *Journal of Research in Personality, 56*(1), 59-69. doi: 10.1016/j.jrp.2014.10.006

Richardson, M., Abraham, C. & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin, 138*(2), 353-387. doi: 10.1037/a0026838

Von Stumm, S., Hell, B. & Chamorro-Premuzic, T. (2011). The hungry mind: Intellectual curiosity is the third pillar of academic performance. *Perspectives on Psychological Science, 6*(6), 574-588. doi: 10.1177/1745691611421204.