Exploring the Effect of Gender and Personality Characteristics on Educational Performance

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Abstract

This study was an update on gender differences, personality characteristics and academic performance carried out among students at a private University in Ogun State, Nigeria. The present study intends to validate the findings of the previous study with further review of literature on the subject matter. The result of the study showed that male and female students are different with regards to academic performance but not in personality traits. Also, conscientiousness (r=.272, p<.01) was found to be positively related to academic performance while neuroticism (r=-.170, p<.05) negatively correlated with academic performance. Furthermore, the other Big five personality factors did not have any significant relationship with academic performance: extraversion (r= -.027, p>.05), agreeableness (r= .057, p>.05) and openness to experience (r= -.018, p>.05). These personality factors jointly influenced changes in academic performance [F (5,195) = 3.897, p<.01]. The present study found a consensus in gender differences in academic performance with females outperforming the males. Also, studies agree that females are higher in agreeableness and neuroticism but not significantly different in conscientiousness when compared with males. This study concluded that conscientiousness trait had a significant effect on students' academic performance; and that female students academically performed better than their male counterparts. Consequently, it was recommended that further studies be conducted to ascertain gender differences in personality characteristics using a very large sample size.

Keywords: Academic performance, personality characteristics, gender, students

1. Introduction

Studies have shown that youth has remained a cogent aspect of national development in both developed and developing countries (Omonijo, Olujobi, Anyaegbunam & Adeleke, 2018). Given this, several efforts are put in place in ensuring their development. Such efforts are hinged on heavy
governmental investments in quality education (Omonijo, Oludayo, Uche, & Rotimi, 2014). Apart from ensuring its quality, it becomes essential to make it accessible to the citizens. In this regard, the government of many developing countries are not doing badly, as they are more concerned about granting quality and accessible education to their citizens but in most developing countries, studies have shown otherwise, because most persons occupying the position of authority in those countries are not responsible to the wellbeing of the entire populace. They may be deemed to be much more concerned about their selfish interests.

In many scholastic works, it has been argued that education enriches the employees, organisations and the society at large (Omonijo, Anyaegbunam, Ejoh & Joe-Akunne, 2020). The knowledge acquired by workers accords them an opportunity to earn incomes to cater to their families. The input of such workers has tremendous impact on the progress of work organisations and societal advancement.

Students’ access to quality education is a major requirement for excellent academic performance, but much more important is the level of commitment of stake holders (students, teachers, parents, government and institutions) to quality education. Thus, the availability of necessary teaching tools, technologies and resources can influence students’ academic performance (Crescent University, 2020). Hence, in educational institutions and countries where such facilities are available, students are more likely to perform better than where they are not available. In developing countries such as Nigeria, studies have shown that such factors are either not available or available in a poor state (Darly, Witt, Martens & Dool, 1997) which often results in poor academic performance.

Students’ academic performance have also been linked to learning attitudes (Sideeg, 2015). However, most of these studies were conducted in developed nations where education is more conducive for students. Although the study of Olowookere, et al., (2017) was conducted at a private mission University, southwest Nigeria, but the study as well failed to consider conventional Universities and a larger sample size. Consequently, the present study, extended the literature review and compared findings from other studies in a bid to further validate these findings.

The work is organised into three parts. The first aspect dealt with the introduction while the second aspect focused on literature review. The last part presented methods of data collection and analysis, findings, discussion and recommendations.

2. Literature Review

2.1 Gender differences, academic performance and personality characteristics

Till date, literature on gender difference in academic performance and personality characteristics across all levels of education is scarce. Not much has been done in this regard. Previous studies have shown different conceptualization of the term gender in academic literature (Olowookere, Odukoya, Omonijo, Adekeye, Igbokwe, Elegbeleye & Okojide, 2020). However, for the purpose of this study, the definition of Collins Online Dictionary (2020) is considered appropriate, it defined gender as a state of being male or female with regards to cultural and social roles which the society views as suitable for each person. Although, the importance of cultural and social roles is crucial in the discussion of gender, but much emphasis is placed on its relationship with academic performances in the present study.

According to Lee (2010), academic performance has to do with the knowledge and skills that students have learned on subjects taught for a period of time in educational systems. Since the inception of education, students’ performance in subjects or courses taught has been the yardstick of determining how well they fair at the end of each semester or term.

Jabor, Machtmes, Kungu, Buntat and Nordin (2011) combined age with gender and discovered that there were significant differences in mathematics GPA scores between age groups and gender. Similarly, Khwaileh and Zaza (2011) found that female students performed better academically than their male counterparts. In corroboration, Ali, Haider, Munir, Khan and Ahmed (2013) highlighted parental socio-economic status, age, accommodation, gender, quality of teaching, school
environment as factors that influences students' academic performance.

Furthermore, Jackman and Morrain-Webb (2019) suggested that females' academic superiority over males is a popular conclusion in literature. Many studies concluded that females perform better in academic endeavours when compared to males. Similarly, Martinez and Gil (2019) found that females were more committed to academic work than males. Albalawi (2019) also reported that female medical students were slightly better in academic performance than their male counterparts. On the contrary, Mwihia (2020) found male students in Kinangop Sub County, Kenya to have higher academic performance than the female students. Furthermore, Adesope and Nwanekezi (2007) and Okonna, Ushie and Okworo (2014) found no significant gender difference in academic performance.

Lippa (2010) considered gender differences in personality characteristics and reported that small to moderate differences exist in males and female personality characteristics based on the five factor model. However, it was found that females were significantly higher in their levels of agreeableness and neuroticism compared to males. Similarly, Rahmani and Lavasani (2012) found gender differences in the openness to experience and agreeableness dimensions of the big five personality factors with the females scoring higher than the males. Also, Vianello, Schnabel, Sriram and Nosek (2013) found females to be higher in neuroticism and agreeableness, the males to be higher in extraversion and openness to experience and no significant difference in males and females when compared on the conscientiousness trait.

2.2 Big five factors of personality and academic performance

The term personality simply means continuing forms of sensations, perception and comportments that usually prompt human beings to act similarly and differently from others. On this ground, it could be responsible for the dissimilarities in students' persistent sensitivity, reasoning and attitudes towards their studies. The big five personality factors proposed by Costa and McCrae (1992) are the most widely used personality classifications in the literature. These factors include agreeableness, neuroticism, extraversion, conscientiousness and openness to experience. They are present in people lives in various degrees, while some persons have a combinations of high traits others have lows traits.

Openness to experience could explain students' tendency to be innovative, inquisitive and show high level of cleverness. Given this, openness to experience is expected to have a significant connection with academic success. Conscientiousness or assiduousness is another personality feature that describes students' tendency to pay attention to details. In the light of this study, such includes punctuality in classes, commitment to study plans, organisation in goal attainment etc. Extraversion is also an essential personality trait which illustrates the propensity for students to be emphatic, friendly, exhilarating and outgoing and it could be reasonable to expect students who are extraverted to be active in academic activities.

Neuroticism is yet another vital trait that shows the tendency for students to be emotionally unbalanced. Hence, studies have shown that such students are usually depressed due to apprehension, hostility and susceptibility. Lastly, agreeableness is still a personality trait to be strongly reckoned with in students' academic performance determination. It means the tendency for individuals to be supportive, accommodating, pleasing, caring and trusting in their dealings with others.

Although personality traits have been associated with variations in students' academic performance, not much studies have been conducted in this regard. Meyer, Fleckenstein, Retelsdorf and Köllera (2018) supported the findings of Olowookere et al (2017), they found conscientiousness to predict grades in mathematics and openness to experience to predict grades in English tests. Dur (2018) reported conscientiousness to have exerted strong influence on academic performance, and extraversion and agreeableness to have considerably influenced academic performance. However, neuroticism and openness to experience were found to be unrelated to academic performance. Bakar and Chew (2018) found that only four out of the big five factors of personality were related to academic performance, and this included agreeableness, conscientiousness, extraversion and neuroticism. Siddiquei and Khalid (2018) reported a positive relationship between extraversion and
learning styles, but found neuroticism to be negatively related to learning styles and GPA.

3. Methods

The initial study employed exposé facto research design. Students at a private University, represented the study’s population. A total of two hundred and one (201) sample was selected through convenient sampling technique. The male students in the sample were ninety-eight (98) while their female counterparts were One Hundred and Three (103) females.

As regards instrument of data collection, the study engaged questionnaire. The instrument was administered to students across the four and five faculties and academic levels respectively. Respondents were assured of absolute confidentiality in handling information disclosed in the course of the study. The BFI-44 item inventory was used to measure the big five factors of personality. These include: agreeableness, neuroticism, extraversion, conscientiousness and openness to experience. As for data analysis, multiple regression, Pearson product moment correlation, multiple regression and t-test for independent samples were engaged.

In term of reliability, each of the factors revealed the reliability coefficient indicated in Table ii

Table ii: Reliability Coefficient

<table>
<thead>
<tr>
<th>.79</th>
<th>.79</th>
<th>.80</th>
<th>.75</th>
<th>.83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>extraversion</td>
<td>Openness</td>
<td>Agreeable</td>
<td>Conscientiousness</td>
</tr>
</tbody>
</table>

Source: Costa and Macrae (1992)

The present study is a literature review that included empirical studies on the effect of gender on academic performance and gender differences in personality characteristics from 2001 till date. These include conducted studies in different contexts across different contents of the world.

4. Research Hypotheses

- H1: Males and females will not differ significantly in academic performance.
- H2: Males and females will not differ significantly in personality characteristics.
- H3: Personality characteristics will not significantly influence students’ academic performance

5. Testing of Hypotheses and Results

5.1 H1: Males and females will not differ significantly in academic performance.

The above stated hypothesis was tested via t-test for independent samples. The result in Table iii revealed variances in male and female students’ academic performance. From the findings, male and female students were significantly different in academic performance [t (199) = 5.256, p<.01)]. The academic performance of female students (X=3.1262) was higher than their male counterparts (X=2.6327). Thus, the hypothesis was not confirmed.

Table iii: t-test for independent samples showing gender differences in students’ academic performance

<table>
<thead>
<tr>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGPA Male</td>
<td>98</td>
<td>2.6327</td>
<td>.6944</td>
<td>199</td>
<td>5.256</td>
</tr>
<tr>
<td>Female</td>
<td>103</td>
<td>3.1262</td>
<td>.6367</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2 **H2: Males and females will not differ significantly in personality characteristics**

The second hypothesis was tested using t-test for independent samples and its findings revealed no significant difference in male and female students’ openness \( t (199) = 1.012, p>.05 \), neuroticism \( t (199) = .733, p>.05 \) and agreeableness \( t (199) = .410, p>.05 \). But, male and female students were found to be significantly different in conscientiousness \( t (199) = 3.258, p<.01 \) and extraversion \( t (199) = 2.036, p<.05 \).

Additionally, the findings demonstrate that female (\( \bar{X}=33.1553 \)) were higher in conscientiousness than their male counterparts (\( \bar{X}=30.2653 \)) but the reverse was the case in areas of extraversion because male (\( \bar{X}=25.6224 \)) were found to be higher in extraversion than female (\( \bar{X}=24.0388 \). The implication of the findings is that female in the study were more conscientious and less extraverted while their male counterparts were more extraverted and less conscientious.

**Table iv: t-test for independent samples showing gender differences in personality characteristics**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>( \bar{X} )</th>
<th>SD</th>
<th>DF</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conscient.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>98</td>
<td>30.2653</td>
<td>5.780</td>
<td>199</td>
<td>3.258</td>
<td>.001</td>
</tr>
<tr>
<td>female</td>
<td>103</td>
<td>33.1553</td>
<td>6.7327</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Extrav.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>98</td>
<td>25.6224</td>
<td>5.707</td>
<td>199</td>
<td>2.036</td>
<td>.043</td>
</tr>
<tr>
<td>female</td>
<td>103</td>
<td>24.0388</td>
<td>5.323</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Agreeb.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>98</td>
<td>34.5408</td>
<td>5.299</td>
<td>199</td>
<td>.410</td>
<td>.682</td>
</tr>
<tr>
<td>female</td>
<td>103</td>
<td>34.8835</td>
<td>6.459</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Neuro.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>98</td>
<td>20.6939</td>
<td>5.307</td>
<td>199</td>
<td>.733</td>
<td>.464</td>
</tr>
<tr>
<td>female</td>
<td>103</td>
<td>21.2718</td>
<td>5.838</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Openness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>98</td>
<td>36.9082</td>
<td>5.411</td>
<td>199</td>
<td>1.012</td>
<td>.313</td>
</tr>
<tr>
<td>female</td>
<td>103</td>
<td>36.0971</td>
<td>5.923</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.3 **H3: Personality characteristics will not significantly influence students’ academic performance**

As indicated in **Table v**, the relationships between variables were presented but out of these variables, conscientiousness and neuroticism only were discovered to have significant relationships with academic performance. Even though conscientiousness (\( r=.272, p<.01 \) unveiled positive relationship with academic performance, neuroticism revealed negative relationship with academic performance \( r=-.170, p<.05 \). But a significant relationship was not established between extraversion and academic performance \( r=-.027, p>.05 \), agreeableness and academic performance \( r=.057, p>.05 \), and openness to experience and academic performance \( r=-.018, p>.05 \). These findings point to the fact that students who were conscientious were more academically inclined than others. The result further suggests that the higher the level of students’ neuroticism, the poorer their academic performance.

**Table v: Correlations among variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGPA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Extra</td>
<td>-.027</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Conscie</td>
<td>.272**</td>
<td>.104</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Aaggre</td>
<td>.057</td>
<td>.144*</td>
<td>.205**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Neuro</td>
<td>-.170*</td>
<td>-.209**</td>
<td>-.386**</td>
<td>.286**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6. Openness</td>
<td>-.018</td>
<td>.159*</td>
<td>.239**</td>
<td>.387**</td>
<td>-.165*</td>
<td>1</td>
</tr>
</tbody>
</table>

Correlation is significant at \*p<.05 and \**p<.01

However, multiple regression analysis was employed to test hypothesis 3 with result indicating
personality characteristics such as openness, extraversion, neuroticism, conscientiousness, agreeableness jointly predicted academic performance \[ F(5,195)= 3.897, \ p<.01 \]. Given this, personality characteristics clarified 9.1% variance in academic performance \( R^2 = .091, \ p<.01 \). However, only conscientious made significant contribution to the variance in academic performance \( \beta = .264, \ p<.01 \). The other personality characteristics: openness \( \beta = -.084, \ p>.05 \), extraversion \( \beta = -.060, \ p>.05 \), neuroticism \( \beta = -.096, \ p>.05 \) and agreeableness \( \beta = -.010, \ p>.05 \) did not make significant contribution to the variance in academic performance. This result implies that as students increase their level of conscientiousness, their academic performance increases. That is, students’ attention to details, punctuality to lectures, commitment to study plans, organized and goal driven lifestyle boost academic performance. However, the other personality factors never impacted on academic performance of students significantly. This hypothesis was not confirmed.

Table vi: Multiple regressions showing personality characteristics as a predictor of academic performance

<table>
<thead>
<tr>
<th>Model</th>
<th>( R^2 )</th>
<th>Adj. ( R^2 )</th>
<th>( F )</th>
<th>( p )</th>
<th>( \beta )</th>
<th>( t )</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.091</td>
<td>.067</td>
<td>3.897</td>
<td>.01</td>
<td>5.067</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Extrav.</td>
<td>-</td>
<td>-.060</td>
<td>-.852</td>
<td>.395</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree.</td>
<td>-</td>
<td>-.010</td>
<td>-1.26</td>
<td>.900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscien.</td>
<td>.264</td>
<td></td>
<td>3.447</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuro.</td>
<td>-</td>
<td>-.096</td>
<td>-1.257</td>
<td>.210</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openess</td>
<td>-</td>
<td>-.084</td>
<td>-1.117</td>
<td>.265</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: CGPA
b. Predictors: (Constant), Openness, Extraversion, Neuroticism, Conscientiousness, Agreeableness

6. Discussion

The initial study found conscientiousness to be positively related to academic performance while neuroticism was negatively related to academic performance. It also discovered that extraversion, openness to experience and agreeableness were unrelated to academic performance which is an indication that personality characteristics significantly predicted academic performance partially, because only conscientiousness was found to significantly contribute to students’ academic performance. The outcome of investigation here goes to support O’Connor and Paunonen (2007) in Olowookere et al., (2017) who discovered that conscientiousness predicted scholastic achievement. Further review of literature showed that conscientiousness and openness to experience were associated with academic success (Dur 2018; Meyer, et al., 2018). However, Dur (2018) did not find any correlation between academic performance and the personality dimensions of neuroticism and openness to experience. On the contrary, Siddiquei and Khalid (2018) suggested neuroticism to be negatively related to academic success.

Although neuroticism is an indication of emotional instability, the negative correlation between neuroticism and academic performance shows the importance of emotional stability to academic success. By implication, emotional instability results in poor academic performance. Emotionally unstable students have high tendency to be distracted from their academic pursuit and ultimately perform poorly in academic endeavours. The outcome of the study of Chamorro-Premuzic and Furnham, (2003a) cited in Olowookere et al., (2017) validates the findings of the present study, as they found neuroticism to be unrelated to GPA but found that NEO PI-R anxiety and impulsiveness which are constituents of neuroticism had significant negative correlation with GPA.

With respect to gender, the present study observed a consensus in empirical support for differences in male and female students’ academic performance and personality characteristics (Lippa, 2010; Rahmani & Lavasani, 2012; Vianello, Schnabel, Sriram & Nosek,2013). Female students
were found to have higher academic performance and conscientiousness which concur with Jabor, et al., (2011) who found correlation between gender and academic performance and negate the findings of Adesope and Nwanekezi (2007) who discover that gender does not have effect on academic performance. Rather, male students were found to be more extraverted than the female students and no gender difference was reported in openness to experience, agreeableness and neuroticism.

7. Conclusion

Dwelling on the study’s findings, we concluded that personality features or traits, particularly conscientiousness affect academic performance and that, female students were more conscientious than the male students which explain their higher academic performance when compared with their male counterparts. It was also concluded that students’ level of emotional stability have some connection with their academic performance.

8. Recommendations

Due to the above conclusion, the study recommends that:
   a. Conscientiousness be encouraged among students.
   b. Students with neurotic tendencies should be assisted through counselling interventions and psychotherapy.
   c. Further research on gender differences in personality characteristics and how it impacts on academic performance, using large sample size will contribute significantly to the body of knowledge

9. Acknowledgments

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