Measured Influence of Big-five Factor and Gender as Correlates of Academic Self-efficacy of Educationally Distressed Adolescents in Ibadan, Nigeria

by

Aremu, A. Oyesoji
University of Ibadan, Nigeria

Abstract

This study examined the influence of big-five personality factors (neuroticism, extraversion, openness to expression, agreeableness, and conscientiousness) and gender on academic self-efficacy of educationally distressed adolescents. Educationally distressed adolescents in the context of the study refer to students attending extra mural classes and who have spent more than two years repeatedly writing the same examinations. 450 (Males =173, Females = 277) adolescents aged between 17 and 21 attending extra mural classes in four centres in Ibadan, Nigeria were purposively sampled using a randomised cluster sampling technique. With the aid of two instruments, NEO Five-Factor Inventory (Costa & McCrae, 1991) (r=0.77) and Academic Self-Efficacy Scale (r= 0.84), data collected were analysed on two research hypotheses using hierarchical multiple regression statistics. The results obtained showed that the big-five personality factors and gender were positively associated with academic self-efficacy of educationally distressed adolescents. However, the relative contribution of the predictors indicated that only neuroticism and gender could predict academic self-efficacy of the participants. The implications of these findings are discussed with a view to helping educationally distressed adolescents attending extra mural classes.

Key Words: Adolescents, Big-Five Factor, Academic Self-efficacy.

Introduction

A good number of studies have been dedicated to understanding the psychosocial factors that can predict academic performance of learners (Aremu & Sokan, 2003; Ackerman & Heggestad, 1997; Furnham & Medhurst, 1995); but while such studies have been well documented in literature, the contemporary research thinking is now focusing on academic self-efficacy (Bouffard-Bouchard, Parent & Parivee, 1991; Hackett, 1985; Junge & Dretzke, 1995) not only because of the dynamism of self-efficacy model, but perhaps due to the expediency and resurgence of the construct in academics. With this increasing research in self-efficacy, psychologists and educational researchers also begin to show interest in the relationship between personality factors and academic self-efficacy. Research into personality factors and academic self-efficacy has therefore taken a centre stage; and the evidence of relationship between the two (personality and academic self-efficacy) in the literature remains inconclusive.

Several studies on academic self-efficacy have indicated that students’ academic grades can be enhanced if their self-capabilities to learn or perform related academic activities are improved upon. A wealth of research findings show that self-efficacy correlates with achievement...
outcomes (Bandura, 1997; Pajares, 1996; Schunk, 1995; Adeyemo & Ogunyemi ). Specifically, self-efficacy theory (Bandura, 1997, 1986) has been used by researchers (Greene, Miller, Crowson, Duke, & Akey, 2004; Miller, Greene, Montario, Ravidran, & Nichols, 1996) to explain academic performance. According to Bandura (1986), perceived self-efficacy is defined as ‘people judgement of their capabilities to organise and execute courses of action required to attain designated types of performance’ (p.395). These capabilities, Bandura (1986, 1997) and Schunk (1991) note are determinants of academic motivation choice and performance. This invariably implies that tendency to excel in academics is a function of personal efforts put in by individual students. This is amplified by Schunk and Pajares’s (2002 ) submission that learners obtain information to appraise their self-efficacy from their actual performances, their vicarious experiences, the persuasions they receive from others, and their physiological reactions. The onus of this contention rests on learning capabilities of the learners. It is therefore, expected as submitted by Schunk and Pajares (2002) that compared with students who doubt their learning capabilities, those who feel efficacious for learning or performing a task participate more readily, work harder, persist longer when they encounter difficulties, and achieve at a higher level. Schunk and Pajares’ (2002) submission is rooted in self-efficacy theoretical framework of social cognitive theory in which human achievement is claimed to depend on interactions between one’s behaviours, personal factors (e.g., thoughts, beliefs), and environmental conditions (Bandura, 1986, 1997).

The utility of personality factors and academic self-efficacy is yet to be thoroughly grounded in literature. While there is sufficient literature on personality traits and academic performance (Whipple, 1922; Webb, 1915; Digman; 1990; Barret, Petrides, Eysenck & Eysenck, 1998; Eysenck, 1997; Chamorro-Premuzic & Furnham, 2003a, 2003b; Rindermann &Neubauer, 2001), the same measure of research has not been documented on personality traits and academic self-efficacy. The contention to investigate the influence of personality on academic performance was asserted more than 80 years ago by Whipple (1922, p.262) that it would be “foolish to suppose that native intelligence is the sole factor in academic success”. This assertion, has not only provoked research in many realms, the contemporary research thesis has also focused (although minimally) on personality traits and academic self-efficacy.

There are a few empirical studies relating personality traits to academic self-efficacy. For instance, Carver and Scheier (1998) draw a parallel between self-efficacy and dispositional optimism. According to them, highly self-efficacious individuals’ outcomes are as a result of their personal efforts. Neuroticism for example, has been reported to be a negative predictor of academic performance (Chamorro-Premuzic & Furnham, 2003a, 2003b; Rindermann & Neubauer, 2001; Sanchez-Marin, Rejano-Infante & Rodriguez-Troyano, 2001). Similarly, Ackerman and Heggestad (1997) report that neuroticism also reveals weak negative associations with performance on tests of ability. While explaining the reason for the negative correlation of neuroticism with academic performances, Petrides, Chamorro-Premuzic, Frederickson and Furnham (2005) note that the negative link is primarily in terms of anxiety. This, Hembre (1988) and Zeidner (1995) affirm that test anxiety and fear of failure, are both typical of neurotic individuals, and therefore, affect performance negatively. What this implies is that neuroticism would not only imply on performance in academics, it could also affect self-efficacy. In this sense, Muller (1992) argues that neuroticism may have long-term negative consequences for student self-perception, thereby leading to decreased academic self-efficacy and performance.

Anthony (1973) and Furnham & Medhurst (1995) note that extraversion negatively correlated with academic performance. In a similar observation, Goldberg (1992) notes that extraversion is related primarily to behavioural dominance and achievement seeking. Thus, the contention is that with extraversion domain of personality, most especially as related to performance in
academics, individuals with extraversion personality could be more positive to their academics. McCrae and Costa (1987) alludes to this assertion by stressing that extraversion being related to sociability could be in a form of cognitive/affective abilities. This means that an individual who is expected to excel in academics should display a positive feeling.

Similar to the contentions of researchers on extraversion, openness which is another personality trait in big-five factor, emphasises cognitive intellect (Goldberg, 1992). According to Wiggins and Trapnell (1996) agency and the mind, whereas “openness to experience” view is associated with communal matters of the “heart” (p.144). Openness, therefore, involves being imaginative, which is related to academic tasks.

Agreableness and conscientiousness which are the last personality traits in the Big-Five Factor family are the tendency to be trusting, compliant, and achieving and dependable respectively (Barrick & Mount, 1991). Mainly, it is documented in literature that conscientiousness is a strong positive predictor of scholastic achievement across educational levels (Busato, Prins, Elshout & Hamaker, 2000). Although this study is not aware of any study that utilised the five orthogonal factors on academic self-efficacy, the plausibility of the influence of the personality traits would not be out of place (judging from the Big-Five Factor utility in literature) in measuring academic self-efficacy most especially of educationally distressed students.

Students from time to time experience academic stress arising from challenges posed by their educational pursuits. Sensing this, Silva, Dorso, Azhar and Renk (in press) are of the opinion that students’ experience of anxiety and stress during their college years may be important to their overall functioning as well as to their academic performance. Corroborating this, Smith and Renk (2007) note that some of the factors impinging on the well-being of students may be related to the academic-related stress experience by college students. In relation to these academic induce related stress factors, Blimling and Miltenberger (1981) are of the view that students may also wonder on the effect of pressures from parents and friends. Thus, this may also pose some stress, most especially among average students. Students have shown that students worry a lot about getting poor grades and failing a test or examination (Ollendick, 1983; Aremu & Oluwole, 2001; Nuris, Meesters, Merckelbach, Sermon & Zwakhalen, 1998; Snipstad, Lie & Winje, 2005). For example, Christie and MacMullin (1998) report that among Austrian primary school children, worries about school matters, such as keeping up with the workload meeting deadlines, and doing well in tests, ranked highest out of 31 possible sources of stress in both frequency of occurrence and intensity. Similarly, Hui (2001), Kong, et al., (2006) report that in Hong Kong and among secondary school students, school examinations, workload, and homework are identified as principal causes of academic stress.

From the foregoing, it has been established that students are not psychologically insulated from academic-related stresses. As a matter of fact, these can impair their academic progress as well as cause problems in their social and emotional adjustments (McGuigan, 1999).

Arising from this evidential contention on intensity and effects of academic-related stress, and also on the relationship of personality types (as reviewed) on academic performance, and more importantly on the overwhelming influence of self-efficacy on academic performance, this study therefore aims at investigating the following research questions:
What is the combined influence of the Big-Five Factor personality types (neuroticism, extraversion, openness, agreeableness, and conscientiousness) and gender on academic self-efficacy of educationally distressed adolescents?
What is the relative contribution of the predictors (neuroticism, extraversion, openness, agreeableness, conscientiousness, and gender) on the criterion of academic self-efficacy?
Method

Participants and procedure

Participants were N=450 (173 males and 277 females) from a population of students attending post-secondary school extra mural classes at Methodist Grammar School, Emmanuel College, Ikolaba High School, and Orogun Grammar School, all in Ibadan, Oyo State, Nigeria. Age was between 17 and 21 years (M=18.93; SD=1.37). In regular extra mural sessions in each of the sampled school centres, participants were given a set of questionnaires assessing their personality traits and academic self-efficacy in randomised order with the assistance of four research assistants.

Extra mural classes are organised for candidates who must have failed one or more subjects in examinations conducted by the West African Examinations Council (WAEC) and National Examination Council (NECO). The WAEC and NECO are the only recognised statutory examination bodies in Nigeria responsible for the conduction of examinations that are prerequisites to entrance into post-secondary higher institutions; and also for a minimum constitutional requirement to stand for any elections in Nigeria. In this context, many candidates do sit for such examinations two or three times (or even more) before passing the minimum requirements. Such candidates are operationally referred to as educationally distress in this study.

Measures

Personality traits and academic self-efficacy for each of 450 participants were measured with validated instruments: NEO Five-Factor Inventory (Costa & McCrae, 1991) and Academic Self-Efficacy Scale adapted from Schwarzer and Jerusalem’s (1995) General Self-Efficacy Scale respectively.

The NEO Five-Factor Inventory measures five areas of personality domains investigated in this study (Neuroticism, Extraversion, Openness to Expression, Agreeableness, and Conscientiousness). It is a 60-item (12 item for each of the five personality factors) instrument structured on a 5-point Likert Format. The NEO Five-Factor Inventory was adequately reliable (α=.87). Examples of items in each of the personality factors were: Neuroticism – “I am not a worrier”, “I often feel inferior to others”; Extraversion – “I like to have a lot of people around me”, “I am a cheerful, high spirited person”; Openness to Expression – “I don’t like to waste my time daydreaming”, “Once I find the right way to do something, I stick to it”; Agreeableness – “I try to be courteous to everyone I meet”, “I tend to be cynical and sceptical of others’ intentions”; and Conscientiousness – “I’m pretty good about pacing myself so as to get things done on time”, and “I try to perform all the tasks assigned me conscientiously”. In the present study, using a split-half method, the NEO Five-Factor Inventory was also found to be reliable (α=.77).

Academic Self-efficacy. The 10-item of academic self-efficacy scale were adapted from Schwarzer and Jerusalem’s (1995) General Self-efficacy scale. The original scale had a item in the current study.

To measure the independent variable, participants asked to rate their academic self-efficacy on a scale that ranged from 1= Not at all true to 4= Exactly true. Examples of the contents of ASS included “I can always manage to solve difficult problems if I try hard enough”; “I am confident that I could deal efficiently with unexpected academic events”; “I can solve most academic
problems if I invest the necessary effort”; and “I can handle whatever comes my way in school”. The internal co-efficient value of ASS was r=.84.

Analysis strategy

The analysis was carried out using hierarchical multiple regression of which means, standard deviation, and inter correlations matrix were determined.

Results

Table 1. Analysis of means, standard deviation and inter correlations among predicting variables and academic self-efficacy of educationally distressed adolescents

<table>
<thead>
<tr>
<th>Predicting Variables</th>
<th>N</th>
<th>E</th>
<th>O</th>
<th>A</th>
<th>C</th>
<th>Gender</th>
<th>PEB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Self-efficacy(S)</td>
<td>1</td>
<td>-089</td>
<td>.122*</td>
<td>-.019</td>
<td>-.017</td>
<td>.130**</td>
<td>-.067</td>
</tr>
<tr>
<td>Neuroticism(S)</td>
<td>.135**</td>
<td>1</td>
<td>-.067</td>
<td>.238**</td>
<td>.000</td>
<td>-.062</td>
<td>.089</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.089</td>
<td>-067</td>
<td>1</td>
<td>.387**</td>
<td>.000</td>
<td>.467**</td>
<td>.121*</td>
</tr>
<tr>
<td>Openness</td>
<td>-.112</td>
<td>.238**</td>
<td>.387**</td>
<td>1</td>
<td>.344**</td>
<td>.452**</td>
<td>.129**</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.019</td>
<td>.277**</td>
<td>.344**</td>
<td>1</td>
<td>0</td>
<td>.301*</td>
<td>.000</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.017</td>
<td>-.062</td>
<td>-.218</td>
<td>.467**</td>
<td>.452**</td>
<td>.301**</td>
<td>1</td>
</tr>
<tr>
<td>Gender</td>
<td>.130**</td>
<td>.089</td>
<td>.121**</td>
<td>.129**</td>
<td>.000</td>
<td>.114*</td>
<td>1</td>
</tr>
<tr>
<td>PEB</td>
<td>-.067</td>
<td>.021</td>
<td>.084</td>
<td>161**</td>
<td>.072</td>
<td>.075</td>
<td>.032</td>
</tr>
<tr>
<td>Sig.</td>
<td>.182</td>
<td>.676</td>
<td>.092</td>
<td>.001</td>
<td>.149</td>
<td>.133</td>
<td>.529</td>
</tr>
<tr>
<td>Mean</td>
<td>30.24</td>
<td>31.31</td>
<td>32.21</td>
<td>30.43</td>
<td>30.56</td>
<td>32.58</td>
<td>1.51</td>
</tr>
<tr>
<td>SD</td>
<td>5.193</td>
<td>3.728</td>
<td>4.135</td>
<td>4.158</td>
<td>3.815</td>
<td>5.273</td>
<td>.501</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2 tailed)
*Correlation is significant at the 0.05 level (1 tailed)

The results in table 1 indicate the inter correlations among the predicting variables (neuroticism, extraversion, openness, agreeableness, conscientiousness, and gender) and academic self-efficacy. To examine this, a multivariate analysis showed that participants’ personality types and gender were inter correlated, and also positively associated with academic self-efficacy.

Table 2. Summary of Regression Analysis of predicting variables on Academic Self-efficacy

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R square</th>
<th>Adjusted square</th>
<th>R Std. Error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.213</td>
<td>.045</td>
<td>.028</td>
<td>5.119</td>
</tr>
</tbody>
</table>
Table 3. Relative contribution of the predicting variables to academic self-efficacy

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unstandardised coefficient</th>
<th>Standardised coefficient</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>27.672</td>
<td>3.811</td>
<td>7.260</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.152</td>
<td>.071</td>
<td>.109</td>
<td>2.130</td>
<td>.034</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-8.993E-02</td>
<td>.073</td>
<td>-.072</td>
<td>1.240</td>
<td>.216</td>
</tr>
<tr>
<td>Openness</td>
<td>-8.679E-02</td>
<td>.076</td>
<td>-.069</td>
<td>1.145</td>
<td>.253</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>1.018E-02</td>
<td>.074</td>
<td>.007</td>
<td>.139</td>
<td>.800</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>6.792E-02</td>
<td>.059</td>
<td>.069</td>
<td>1.155</td>
<td>.249</td>
</tr>
<tr>
<td>Gender</td>
<td>1.127</td>
<td>.520</td>
<td>.109</td>
<td>2.166</td>
<td>.031</td>
</tr>
<tr>
<td>PEB</td>
<td>-.566</td>
<td>.522</td>
<td>-.054</td>
<td>-1.083</td>
<td>.279</td>
</tr>
</tbody>
</table>

From the results in table 3, only neuroticism (t=2.130, p < 0.05) and gender (t=2.166; p<0.05) could predict academic self-efficacy of the respondents. Other factors (extraversion, openness, agreeableness, and conscientiousness) were found not to predict the dependent factor when taken singly.

Discussion

The primary goal of this study was to investigate the influence of the Big Five-Factor personality types and gender on academic self-efficacy of educationally distressed adolescents. The findings reveal that the Big Five-Factor (neuroticism, openness, extraversion, agreeableness, conscientiousness) and gender are significantly associated with academic self-efficacy. While this study provides general support on some similar findings (Carver & Scheier, 1998; McCrae & Costa, 1987; Wiggins & Trapnell, 1996) most especially as related to influence of some personality factors on academic performance, the major breakthrough in the current study is the finding that gives an empirical nod on the joint influence of the Big Five-Factor and gender on academic self-efficacy of educationally distressed adolescents. In this wise, it is instructive to conclude that the Big Five-Factor could not only impact on academic self-efficacy of educationally distressed adolescents, their joint influence could also predict the degree of stress.
experienced by the participants. This finding does not strengthen earlier empirical suppositions on relevance of the Big Five-Factor to academic performance (Chamorro-Premuzic & Furnham, 2003a; Ackerman & Heggestad, 1997; Petrides, et al., 2005; Anthony, 1973). Although these findings did not report the joint influence of the Big Five-Factor on academic self-efficacy, the plausible explanation from the present study is that the joint relevance of the Big Five-Factor is germane to academic self-efficacy of educationally distressed adolescents.

Due to the inconclusiveness of the discussion on the first research question, the need to investigate the relative contribution of the predicting variables becomes very imperative. The results from the question revealed that of the six independent factors, it was only neuroticism (t=2.130, p<0.05) and gender (t=2.166, p<0.05) that had relative relationship with academic self-efficacy. Taking this finding into account, it could be interpreted in the light that neuroticism and gender could predict academic self-efficacy of educationally distressed adolescents. This relative relationship of neuroticism and gender to academic self-efficacy of the participants suggests that the two independent factors may actually moderate the impact on academic self-efficacy. This finding, talking about neuroticism in the first instance, is substantiated by the work of Chamorro-Premuzic and Furnham (2003a, 2003b), Rindermann and Neubauer (2001), Sanchez-Marin, et al (2001) who also reported a negative relationship between neuroticism and academic performance. Affirming this, Zeidner (1995) was of the view academic induced behaviours like test anxiety and fear of failure are typical of neurotic individuals and could therefore, affect academic performance. The probable explanation of this in relation to the current finding can be justified by reasoning that participants of the current study must have undergone some degree of frustrations arising from repeating examination. This, therefore, could precipitate inherent symptoms of neuroticism in them.

Exploring the relationship of gender and academic self-efficacy of educationally distressed adolescents, the result indicates some evidence of positive relationship. This suggests that academic self-efficacy of educationally distressed adolescents could also be explained along gender line. This finding is supported by the works of Hackett (1985) and Junge and Dretzke (1995).

In this study, while the results have shown clearly that neuroticism and gender are positively related to academic self-efficacy, a clearer influence of the factors needs to be further investigated, most especially on the influence of gender. This limitation notwithstanding, the implications of the current findings are on counselling and remediation of out-of-secondary school adolescents attending extra mural classes. As such, there is a need for the presence of professional school counsellors and psychologists in educational centres running extra mural classes. This becomes crucial in view of the distress such students go through. This is a policy implication for the Ministry of Education that issues licences for such educational centres.

References


Department of Guidance & Counselling, University of Ibadan, Nigeria Email: sojiaremu@yahoo.co.uk