

# A Path Investigation of NEO-PI Factors and Gender on Academic Procrastination of Adolescents in Senior Secondary Schools in Calabar, Nigeria

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## Abstract

The study constructed and tested the NEOPI model and gender factor in explaining academic procrastination of 400 selected Senior Secondary School students in Calabar, Cross River state, Nigeria. The participants responded to instruments as measures of the predictors (Neuroticism, Extraversion, Openness to Experience, Agreeableness, Conscientiousness and gender factor) and criterion measure (academic procrastination). Data generated were subjected to multiple regression and path analytic techniques for the estimation of the standardized path coefficients of the structural equation generated from the paths produced in the model. The results showed that the most meaningful causal model was plausible with ten significant and meaningful pathways. When taken together, the predictor variables accounted for 15.1% of the total effect, out of which 99.98% and 99.96% were direct and indirect respectively. The implications for these findings for the students, parents, teachers, school administrators, school counsellors, curriculum developers and policy makers were discussed.

**Keywords:** Academic procrastination, Gender, NEO-PI

## Introduction

It is expected that the primary motive of any academic task provided to an individual is to enable the individual access effectively and efficiently his/her academic abilities and potentials to produce successful ends. In other words, the goal of an academic task is to build in an individual a strong sense of judgment and responsibility. This has always been the preoccupation of educational psychologists and many stakeholders in educational industry. However, for decades, one phenomenon that has continually overwhelmed most researchers is that of academic procrastination (Day, Mensink & O'Sullivan, 2000; O'Brien, 2002). The reason being that this has more often than not constitutes an hindrance to academic productivity.

Academic procrastination is often seen as a dysfunctional behaviour that is usually associated with students. It is defined as an irrational tendency to delay in the beginning and/or completion of an academic task (Senecal, Juliene & Guay, 2003). Academic procrastination is extremely prevalent among learners but not limited to them. The phenomenon has also been associated with missing deadlines for submitting assignments, delaying the taking of self-paced quizzes, claiming test anxiety, obtaining low course and semester grades, and low cumulative Grade Point Average (Beswick, Rothblum, & Mann, 1988; Clark & Hill, 1994).

Although virtually most people have at least been involved with procrastination at one time or the other, some people have made it a way of life. Hence, the absolute amount of academic procrastination is extensive, with students reporting that it typically occupies over one third of their daily activities, often enacted through sleeping, playing, or television watching (Pychyl, Lee, Thibodeau, & Blunt, 2000). Estimates indicate that in America, 80% to 95% of college students engage in procrastination (O'Brien, 2002), approximately 75% consider themselves procrastinators (Potts, 1987), and almost 50% procrastinate consistently and problematically (Day, Mensink & O'Sullivan, 2000; Haycock, 1993; Onwuegbuzie, 2000). In Nigeria, studies procrastination are not only insufficient, it is also difficult to estimate the proportion of it among students. Popoola (2005) affirms the inconsistency of the subject. Be that as it may, it is speculative that the situation may not be far, if not more serious from what obtains in America and Europe.

There could be internal or external consequences of procrastination among students. Some of the external consequences of academic procrastination could include impaired work and academic progress, strained relationships, and lost opportunities (Carr, 2001). One major consequence of academic procrastination is poor academic performance. Evidence abounds in research that procrastination is usually resulting in poor academic performance (Tuckman, Abry, & Smith, 2002; Beck, Koons & Morgan, 2000). Tice and Baumeister (1997) reveal that procrastinators receive significantly lower paper and examination grades than non-procrastinators.

Although the estimation of the intensity of the contribution of academic procrastination to poor performance may not be clear as other inhibitory factors may be involved, it is observed that the level of academic procrastination is influenced by the presence of other academic inhibitory factors. This is because being successful in academics could be consequent on being regular and doing assignments on time. For instance, the year 2010 West African Examination Council School Certificate Examinations usually organized in

May/June in Nigeria shows that out of over one million candidates that sat for the examination, less than 25% passed Mathematics and English Language, indicating a mass failure. Given the myriad of problems faced by students, teachers and the entire educational system, one may infer that the opportunity to procrastinate academic activities particularly during strike actions and breaks that occurred during the period of the examinations in Nigeria may have been responsible for this magnitude of failure in Mathematics and English Language. If this trend is allowed to continue, it foretells the odds against educational advancement in Nigeria.

Notably, procrastination has been found to be a trait rather than task or course specific state characteristic. If one procrastinates in one area, one is just as likely to do the same in another area (Milgra, Baroti & Mowrer, 1993). Studies have also shown that academic procrastination may be consequent on personality characteristics such as trait of procrastination and a socially perfectionism (Sadler & Sacks, 1993).

Trait procrastinators are thought to engage in dilatory behaviour for a diversity of reasons. These include the protection of their self-esteem through self-handicapping, a demonstration of autonomy, the avoidance of aversive tasks, an avoidance of state anxiety, a response to their fear of failure or perfectionist tendencies, and because they lack self-regulation and self-management capabilities. However, it is still not clear of how the individual's personality style (such as the NEO-PI factor) and gender could influence procrastinating behaviour of school-going adolescents. This is still shrouded in research mystery.

### **Academic procrastination and NEO- PI**

The NEO- PI refers to five major personality types (McCrae & Costa, 1987). Evidence of this theory has been growing over the past 50 years, beginning with McCrae and Costa later expanded upon by other researchers. The five major personality types include neuroticism, extraversion, openness, agreeableness and conscientiousness. Neuroticism refers to a fundamental personality trait that refers to enduring tendency to experience negative emotional states such as feelings of anxiety, anger, guilt, and clinical depression. These characteristics often make a task to be adversely affected by neuroticism (Lowman, 1989). Thus, neuroticism has been reported to be positively related with procrastination (Johnson & Bloom, 1995; Milgram & Tenne, 1999; McCown, Petzel & Rupert, 1987).

Similarly, extraversion described as being socially adaptable (Zuckerman, 1991) is usually characterized by impulsivity, energy level, or increased positive affect and procrastination. Johnson and Bloom (1995) suggest that the impulsive nature of extraversion could increase procrastination. However, only some studies have found the relationship to be positive (Haycock, 1993; Strongman & Burt, 2000; Senecal, Julien & Guay, 2003; Liberty, 1993), while others have found it to be negative (Lay, 1992), or nil (Lay, 1986). Agreeableness refers to the tendency to be compassionate and cooperative rather than being antagonistic. The trait reflects individual differences in general and concern for social harmony. Agreeable individuals are generally considerate, friendly, generous, helpful and willing to compromise their interests with others.

On the other hand, openness to expression involves active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, and intellectual curiosity (Costa & McCrae, 1992). Conscientiousness is the trait of being painstaking and careful, or the quality of acting according to the dictates of one's conscience. It includes such elements as self-discipline, carefulness, thoroughness, organization, deliberation (the tendency to think carefully before acting), and need for achievement. It is an aspect of what was traditionally called character. It is expected that an individual (student) with a conscientious personality trait may possess less potential to procrastinate academic task.

Furthermore, Johnson and Bloom (1995) revealed that conscientiousness accounted for a significant aspect of procrastination scores. The procrastination scores were inversely related to conscientiousness and were significantly correlated with neuroticism. The factors of extraversion, openness to experience, and agreeableness were not significantly correlated with procrastination scores. In Milgram and Tenne's (1999) study, they constructed and validated scales of decisional procrastination as a precondition for assessing similarities and differences between decisional and task avoidant procrastination.

Task aversiveness had a strong relationship to both low conscientiousness and neuroticism (Watson, 2001). Fear of failure, difficulty-making decisions, and dependency had a smaller relationship to several of the conscientiousness and neuroticism facets. In addition, risk-taking was negatively related to agreeableness and the fantasy facet of openness to experience was related to total procrastination (Watson, 2001). For Morford (2008), only two dimensions showed significant correlations; conscientiousness and neuroticism. However, contrary to the study's initial expectations, neuroticism was negatively correlated with procrastination. The implication is that lower procrastinators were more highly neurotic or less emotionally stable. Procrastination was significantly and negatively correlated with extraversion, openness, and agreeableness. Conscientiousness was significantly and negatively correlated with extraversion, agreeableness and insignificantly and negatively correlated with openness and neuroticism.

Results analyzed at the facet level indicated that neuroticism's connection to procrastination was largely a matter of impulsiveness (Schouwenburg & Lay, 1995; Johnson & Bloom, 1995) and that it added little unique

variance over conscientiousness. More recently, constructional equation modelling analysis indicated that neuroticism has no direct links to procrastination and that any relationship is fully mediated by conscientiousness (Lee, Kelly & Edwards, 2006).

### **Gender and Procrastination**

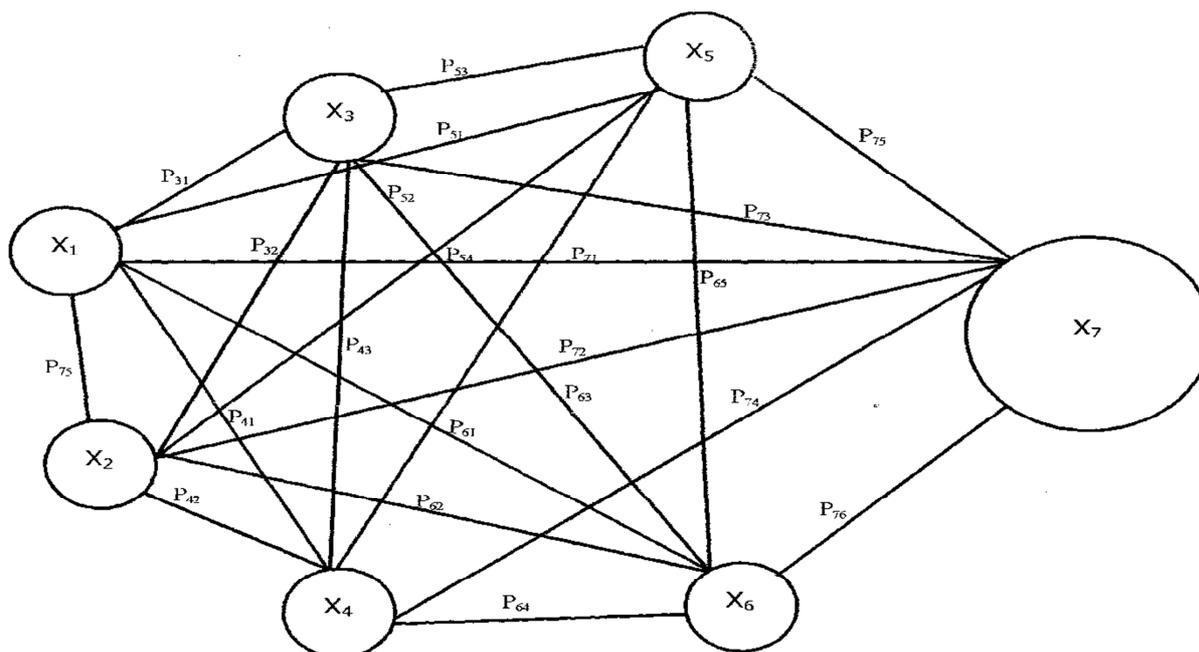
The anticipated influence of gender on procrastination could be difficult to predict. This is because previous investigations into gender difference and the related construct of self-control are inconclusive (Feingold, 1994). They are also most often generating more research dust than it is anticipated. Men may score higher, lower, or the same as women depending on the measure. However, meta-analytic results do show that girls score higher on effortful control than boys (Else-Quest, Hyde, Goldsmith & Van Hulle, 2006). On balance, one could expect procrastination to be weakly associated with males. Konovalova (2007) reports that there is no gender difference in the degree of procrastination between men and women. Furthermore, the study shows that there is no gender difference in willingness to change between men and women. Haghbin and Pychyl (2009) demonstrate that there is a gender difference in the relationship of the distal constructs in procrastination. For males, psychological individuation is related to self-control in the prediction of academic procrastination, whereas for females, freedom from emotional conflict with parents was identified as the distal predictor of self-control and academic procrastination. In the same vein, Bennet, Pychyl, Wohl, and Kovaltchouk (2008) reveal similar findings from related study of self-forgiveness for task specific procrastination. Bennet, et al (2008) are of the view that when male students procrastinate during the first examinations, this could also predict procrastination in the second examination. In addition, Essau, Ederer, O'Callaghan and Aschemann (2008) note that males procrastinate more when filling out forms, registering for a class, and getting identification card. In sum, the ranging controversy on gender and procrastination is not only interesting in research; it is also endless and educative. And all said and done, the attempt to know if the reported findings could be similar to occurrences in Nigeria is what this study will attempt to investigate.

### **Gender and NEO-PI**

The social psychological model explains that most gender differences in personality results from the adaptation of gender roles which define appropriate conduct. Nevertheless, contrary to predictions from evolutionary theory and the social model theories, the magnitude of gender differences varied across cultures (Costa, Terracciano & McCrae, 2001). The effects of gender differences reported in most studies are generally comparable with those reported in Feingold's analysis regarding the direction, and in most cases the size of effects (Lynn & Martins, 1997; Gullone & Moore, 2000). Specific studies like that of Iris and Denis (1998) reported that females were more extraverts than men, and males were more trustworthy within the domain of agreeableness. Studies so far may indicate that cross-cultural significance of gender, the NEO-PI, and its relations to procrastination most especially in a developing country has not received significant investigation. Further research is therefore needed to determine whether the lack of gender differences on those traits is a culturally specific issue.

The purpose of this study is to examine the path influence of NEO- PI factors and gender on the academic procrastination of secondary school students in Calabar, Cross River State, Nigeria. In addition, the study would also attempt to identify direct and indirect influence of NEO- PI factors and gender factors on the academic procrastination of the participants. Lastly, the study tends to examine the extent to which the NEO- PI structure generalizes across cultures.

It has been observed that majority of these studies confirmed the relationship between these factors and academic procrastination. Contributions from research looked at both theoretical and empirical significant relationship among the dependent and independent variables in this study. However, the vast majority of these studies on cultural different environment are a source of concern. In addition, studies have only examined these psychological factors as a single influencing factor and their combined effect on academic procrastination. The need to substantiate on the path linkage and as well the direct and indirect effect of the NEO- PI and gender factor on academic procrastination cannot be underestimated. This illuminates the gap the research intends to fill and thus inform the hypothesized path-model below to explain the relationship among the variables.



**Hypothesized causal model of the seven (7) variable systems.**

X1= Neuroticism, X2 =Extraversion, X3= Openness to experience X4= Agreeableness, X5= Conscientiousness, X6= Gender X7= Academic procrastination

$$X2 = P21X1 + e1$$

$$X3 = P31X1 + P32X2 + e3$$

$$X4 = P41X1 + P42X2 + P43X3 + e4$$

$$X5 = P51X1 + P52X2 + P53X3 + P54X4 + e5$$

$$X6 = P61X1 + P62X2 + P63X3 + P64X4 + P65X5 + e6$$

$$X7 = P71X1 + P72X2 + P73X3 + P74X4 + P75X5 + P76X6 + e7$$

**Research Questions**

The following research questions were designed to give direction to the study.

1. What is the most meaningful causal model involving the big five, gender and academic procrastination among in-school adolescents?
2. What are the directions and estimates of the strength of the causal paths of the factors in the model?
3. What are the direct and indirect effects of the factors on the academic procrastination of in-school adolescents?
4. What proportions of the total effects of the factors are direct and indirect on the academic procrastination of in-school adolescents?
5. What is the relative effect of the factors on academic procrastination of in-school adolescents?

**Research design**

This study adopted a descriptive survey design of ex-post facto type.

**Sample and Sampling Technique**

The population for the study consists of all Senior Secondary School students in Calabar municipality, Cross River, Nigeria. The area consists of 60 Senior Secondary Schools (45 private and 15 public schools). A representative sample of ten (10) secondary schools in the designated area was randomly selected for the study. Forty (40) students were randomly selected from each of the ten (10) schools amounting to four hundred (400) students (233 girls and 177 boys) selected for the study.

**Instrumentation**

Two standardized instruments were used for this study. These are the academic procrastination scale and NEO-PI. The instruments are further described below.

**NEO-PI**

The questionnaire is organized in five sub sections (Bi, Bii, Biii, Biv and Bv) representing Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness of the Big five model. The scale is an adopted version of the 240 item NEO-PI Scale developed and validated by Coasta and McCrae (1987). The adopted version contain 50 items, 10 each across the five sub-sections measuring the five factors of the NEO-PI; Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness respectively. The

scale is developed in a 4-point likert format such that high scores imply reduced occurrences and low scores increased occurrences. The reliability of the scale was determined with a two-week test re-test procedure. The scale reported reliability coefficient alphas of .899, .898, .773, .783 and .616 for Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness respectively for sub sections I, ii, iii, iv and v from a two week test re-test reliability method.

**Academic procrastination scale**

The instrument used as a measure is the modified version of the validated 35 item likert type academic procrastination scale, developed by Tuckman (1991) with an original reliability coefficient of  $r = 0.90$ . The modified version was reduced to twenty (20) items and revalidated before use. The modification of the items in the instrument was done in conjunction with the study’s supervisor. High score indicate decreased intensity of academic procrastination, while low scores indicated increased intensity for academic procrastination. The revised scale reported a reliability coefficient alpha of 0.79 using two weeks test re-test procedure.

**Procedure**

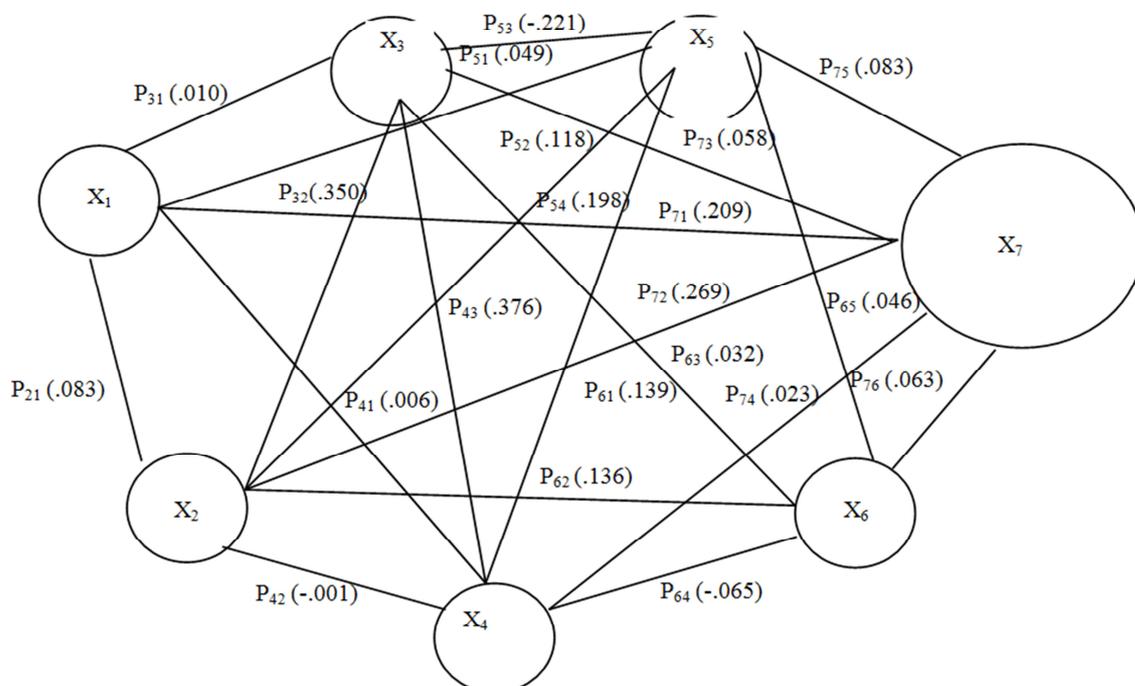
The total number of students to whom the questionnaires were administered was 400. The researchers personally distributed and collected the completed questionnaires from the students. Before this, the researchers briefly explained what is required of the participants to do with the questionnaires and how to fill them. In nearly all the schools, it was done with the co-operation of the school Guidance Counsellors and the class teachers. The researchers waited patiently for all sections to be completed. On completion, the researchers collected the completed questionnaires. This ensured maximum return of the questionnaire.

**Data Analysis**

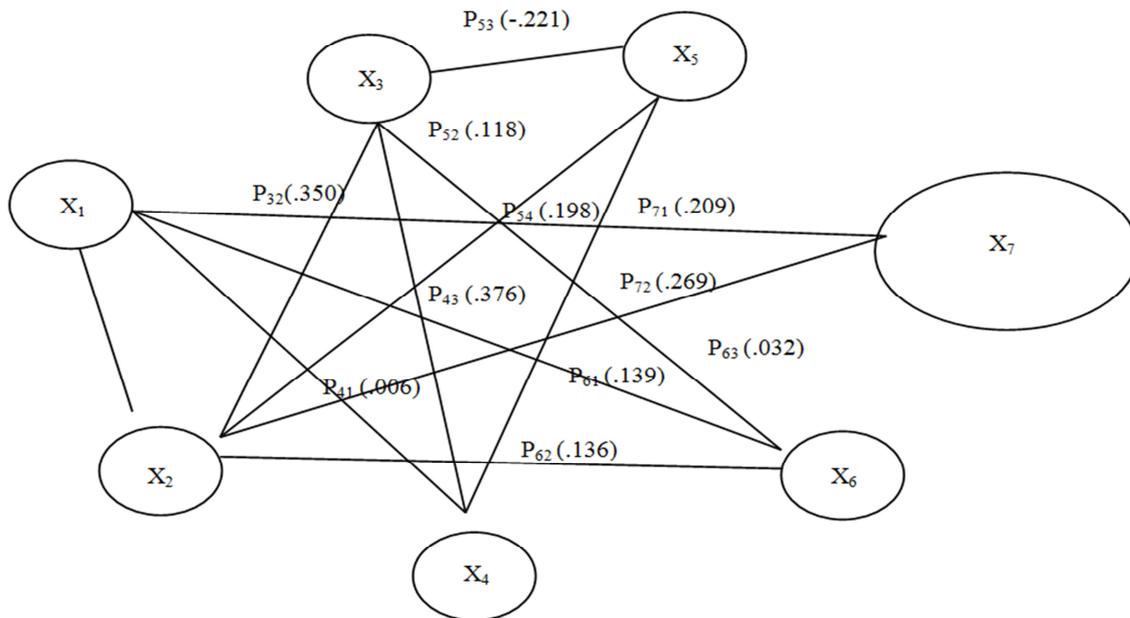
The data collected were analyzed using a causal modelling technique that involved multiple regression, backward solution and path analysis. The hypothesized causal model that was built involved six variables and academic procrastination as the dependent variables. The paths of the model through structural equations trimmed the paths of the model based on statistical significance and meaningfulness. The new order was validated by reproducing the zero order correlation matrixes of the variables from a set of normal equations.

**Results**

The result below provides estimates of the magnitude and significance of hypothesized causal connections between the predictor variables and the criterion variable, best explained by considering the path diagram.



**Figure 1:** Hypothesized causal model of the seven (7) variable systems. X1= Neuroticism; X2 =Extraversion; X3= Openness to experience; X4= Agreeableness; X5= Conscientiousness; X6= Gender; X7= Academic procrastination



**Figure 2:** Most meaningful causal model of seven (7) variable systems

X1= Neuroticism; X2 =Extraversion; X3= Openness to experience; X4= Agreeableness; X5= Conscientiousness; X6= Gender; X7= Academic procrastination.

**Table 1. Original and computed correlation matrix for NEO-PI, Gender and Academic procrastination.**

	X1	X2	X3	X4	X5	X6	X7
X1	1.000	.211	.071	.045	-.009	-.117	.224
X2	.216	1.000	.328	.117	.204	.065	.301
X3	.066	.348	1.000	.343	.307	.028	.122
X4	.031	.131	.376	1.000	.262	-.051	.042
X5	-.003	.210	.333	.295	1.000	-.026	-.007
X6	-.109	.099	.030	-.053	-.026	1.000	.059
X7	.263	.321	.146	.058	-.003	.069	1.000

**NOTE:** The lower half of the matrix of the matrix harbors original correlations while the upper half contains the computed correlations.

The two sets of values shown in table 1 (original and computed) were found to exhibit a minimal discrepancy value of 0.04 using the criteria of minimal discrepancy value of 0.05 as basis of non-rejection. The observation regarding the goodness of fit comparing the original correlations with reproduced correlations led to the conclusion that more parsimonious model is consistent with the original correlations. It implies then that this new model is considered plausible in explaining the causal interaction between the predictor variable (x1, x2, x3, x4, x5 and x6) and the criterion variable (x7). Figure 2 therefore depicts the most meaningful causal model involving the NEO-PI factors and academic procrastination.

**Table2: Effect of the significant predictor variable on students' academic procrastination.**

		Total Effect	Relative Effect	Direct Effect		Indirect Effect		F-Ratio
X7	X1	.263	4.85	.209	44.18	.054	13.95	29.696
	X2	.321	7.16	.264	55.8	.057	14.72	45.802
	X3	.146	1.35			.148	37.72	8.705
	X4	.058	1.42			.058	14.98	1.332
	X5	-.003	0.21			.003	0.77	.004
	X6	.069	0.142			.069	17.82	1.926
<b>TOTAL</b>		<b>.86</b>	<b>15.14</b>	<b>.473</b>	<b>99.98</b>	<b>0.387</b>	<b>99.96</b>	<b>87.44</b>

**T.E. = DIRECT EFFECT + INDIRECT EFFECT.**

**R2 = 0.151**

From the table above, the total effect (direct plus indirect effect) of all the six predictor variables are given, showing the predictor variables and the proportion of their effects (directly and indirectly contributed) to

the total effect. They accounted for 15.1% of the total variance in academic procrastination.

### Discussion

The results of the path analysis shows that figure 2 depict the most meaningful causal model involving the NEOPI factors, gender and academic procrastination. The results in the most parsimonious path showed clearly that the model was consistent with theory and comparing the original correlations with the reproduced correlation matrix. The results reveal that among the six-predictor variables only neuroticism and extraversion had direct effect and indirect effect on the criterion measure. The other variables had indirect influences on academic procrastination via the two aforementioned variables.

The results further revealed that out of the twenty-one (21) hypothesized paths (fig1), ten (10) significant pathways survived. These pathways were derived from six structural equations for producing the most meaningful causal model (fig.2). Since the magnitude of the beta weights were taken to be directly proportional to the degree of the effects of the influencing factors, it could be deduced from table 2 that only two (2) variables (neuroticism and extroversion) have direct causal influence on the academic procrastination of in-school adolescent. In other words, the other variables; openness to experience, agreeableness, conscientiousness and gender indicated no significant direct influence on the academic procrastination of students. The indication is that these factors are determinants of the academic procrastination of in school adolescent.

Concerning the estimate of strength of the causal paths of the variable in the study, extroversion has the most effective causal influence on academic procrastination. As shown on table 2, its direct effect on academic procrastination is estimated at 55.8% of the total effect value 0.716 and of the variability in the criterion measure. Extroversion has both direct of .264 and indirect effects of .057 and a correlation significant at 0.05 on the academic procrastination of adolescents. These results corroborates the findings of Haycock (1993), Strongman and Burt (2000) and Senecal, Julien and Guay (2003) on the effects of extroversion on the students' academic procrastinatory behaviour. The results is not surprising considering that students who posses keen interest in other people, external events and ventures forth in the unknown are easily distracted and thus induces procrastination particularly in academic task. It is in this light that Zuckerman (1991) noted that extraversion is being socially adaptable. Thus, if students' extroversion traits are dominant, it is likely to project increased academic procrastinatory behaviour.

Neuroticism is the second important variable that had causal influence on academic procrastination. Table 2 shows that its influence is estimated at 44.18% of the total effect value, and 0.485 of the variability in the criterion measure. Neuroticism also exerts direct and indirect impact on academic procrastination. This result is in consonance with the findings of Johnson and Bloom (1995), Milgram and Tenne (1999), Morford (2008) and McCown, Petzel and Rupert (1987) that neuroticism correlates positively with adolescents academic procrastination. According to Lowman (1989), a task can be adversely affected by neuroticism. People on the high end of the trait tend to be anxious, become depressed, have poor self-concept, and experience negative emotions. Based on this it comes as no surprise that neuroticism possibly has an explanation for academic procrastination among students.

Concerning the proportion of direct and indirect effects of the predictor variables to the criterion measure, Table 2 indicates that the contribution of the six independent variables, when taken together consists of 15.1% of which 99.98% direct and 99.96% indirect components respectively. The result indicates that 84.9% of the variance in academic procrastination is accounted for by other variables not included in the study. Nevertheless, the result thus implies that to an extent the Big-five has considerable effects on the academic procrastination of in school adolescents.

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