

PERSONALITY TRAITS AS CORRELATES OF LEARNED HELPLESSNESS AMONG LOW ACHIEVING STUDENTS IN MATHEMATICS

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ABSTRACT

This study investigated the relationship between personality traits and learned helplessness among low achieving students in mathematics. It was conducted in public secondary schools in Obio/Akpor Local Government Area of Rivers State, Nigeria. Two research questions and two null hypotheses guided the study. From a population of 552 low achieving students in Mathematics in 14 secondary schools, a sample of 210 low achieving students in mathematics were drawn from 7 secondary schools using purposive and simple random sampling techniques respectively. Three instruments named 'Big five Personality Traits Assessment Scale (BPAS), Learned Helplessness Scale (LHS) and Diagnostic Mathematics Test (DMT) were used for data collection. The instruments were validated in terms of content and face values. The reliability of the instruments was also determined through test-retest method. Multiple regression, Pearson product moment correlation statistics, Anova and t-test associated with multiple regression were used to analyze the data collected. Results got after data analysis indicated that the joint personality traits and personality trait of extraversion when taken independently, showed significant relationship with learned helplessness; while neuroticism, openness to experience, agreeableness and conscientiousness did not have significant relationship with learned helplessness. Based on these findings, appropriate recommendations were made, among which was that government should ensure that trained guidance counselors are employed in public secondary schools in order to help students with the problem of learned helplessness in studying in mathematics.

INTRODUCTION

The feeling of helpless is a major problem to mankind and is associated with a lot of other psychological problems. This feeling of helplessness or out of control in any situation could be uncomfortable and may cause negative emotions and feelings of stress, depression, frustration, decreased motivation and anxiety.

Learned helplessness is a form of psychological disorder and is described as the helplessness and resignation learned when a human perceives no control over repeated bad events, Cherry (2014), Schultz and Schultz (2005), defined learned helplessness as a condition resulting from the perception that we have no control over our environment. Wehemier (2000), refers to learned helplessness as a condition in which a person suffers from a sense of powerlessness arising from a traumatic event or persistent failure to succeed.

For example, a child who repeatedly performs poorly in mathematics tests and assignments despite his best effort to improve, will begin to feel that there is nothing he can do that will have good effect on his mathematics performance. When later faced with any type of mathematics related task, he may experience a sense of helplessness. A person suffering from learned helplessness may have little or no motivation to carry out a particular task. After many repeated and failed attempts to accomplish something, while in an uncontrollable event, one's brain "learns" that success is beyond ones control, and that one cannot influence the

outcome. Once “conditioned” to this belief, the individual gives up hope and efforts, even when later exposed to the same event where control is possible. In effect, the individual has learned to become helpless, in that particular event.

For instance, the child that had repeatedly failed in mathematics tests and assignments, when later faced with mathematics related tasks, may tell himself, “I can’t do it” “why bother myself” “there is no point trying” “after all I will fail”. These feelings can make him feel limited and give up hope of trying, because the brain has learned to be helpless in this situation. However, the study of personality traits becomes important because variations in personality may predispose one to different kinds of psychological disorder of which learned helplessness is one. Personality trait has been defined by Sokan and Akinde (1996) as the functioning of the whole person, the unique organization of the individuals that distinguishes him from other fellows.

In this study, the personality traits investigated in relation to learned helplessness include Neuroticism, Extraversion, openness to experience, agreeableness and conscientiousness. Neuroticism is the tendency to experience negative emotions such as anger, depression or anxiety, Santrock (2006), suggested that neuroticism is highly inherited, a product of genetics, rather than learning or experience. Neurotics react emotionally to events other people consider insignificant. Extraverts are oriented towards outside world. They prefer the company of other people and tend to be sociable, fun loving, affectionate, talkative, assertive, impulsive and dominated (Schultz and Schultz, 2005). Extraversion is a tendency to seek out the company and stimulation of others.

According to Steven & Glinow (2012), openness to experience is the most complete trait and has the least agreement among scholars. It generally refers to people who are originally, independent, creative and daring. People who are open to experience are flexible, creative, intellectually curious, imaginative, interested, independent, sensitive to their beauty and more aware of their feelings.

The agreeableness trait reflects individual differences in general concern for social harmony. Agreeable individuals value getting along with others. They are generally considerate, kind, generous, trusting and trustworthy, helpful and willing to compromise their interests with others. Conscientiousness is a tendency to show self discipline, act dutifully and aim for achievement against measures or outside expectations. It is related to the way in which people control, regulate and direct their impulses. High scores in conscientiousness indicate preference for planned rather than spontaneous behavior.

Statement of the Problem

Mathematics has often been regarded as a difficult subject especially by low achieving students. As a result, most low achieving students in mathematics try to avoid learning mathematics. Over the years, it has been observed that mathematics achievement of students has continued to decline both in teacher made tests and standardized examinations. This in effect, has led to increase in dropout rates among students in proceeding to higher institutions. The reasons for students’ low achievement in mathematics could be many, including phobia, poor teaching methods, lack of interest on the part of the students, inadequate learning facilities, learned helplessness in studying mathematics, etc. Students who experience learned helplessness in studying mathematics also exhibit different personality traits including neuroticism, extraversion, openness to experience, agreeableness

and conscientiousness. However, the extent to which a student's personality can correlate with his/her learned helplessness in studying mathematics is not certain. The question that arises here then is – how do personality traits correlate with learned helplessness in studying mathematics among low achieving students? The need to clear this uncertainty spurred the conduct of this research.

Purpose of the Study

The purpose of this study was to find out if personality traits of neuroticism, extraversion, openness to experience, agreeableness and conscientiousness are correlates of learned helplessness among low achieving students in mathematics in Obio/Akpor Local Government Area.

Significance of the Study

The outcome of this study would be of benefit to students especially the low achievers because they will learn how to solve the problem of learned helplessness in their studies. It would enable school administrators to devise new strategies in teaching and learning, that will curb learned helplessness problem. It would also enable the government to see the need to employ trained guidance counselors in every public secondary school to assist students who might develop learned helplessness problem to overcome it.

Research Questions

The under listed research questions guided the study.

1. To what extent do personality traits of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) jointly relate to learned helplessness among low achieving students in mathematics?
2. To what extent do personality traits of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) independently relate to learned helplessness among low achieving students in mathematics?

Hypotheses

The following null hypotheses were tested to facilitate decision making in the study.

1. There is no significant relationship between the joint personality traits of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and learned helplessness among low achieving students in mathematics.
2. There is no significant relationship between the independent personality trait of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and learned helplessness among low achieving students in mathematics.

Method

The research design used for this study was correlational design. The population comprised five hundred and fifty-two (552) low achieving senior secondary class two (2) students in fourteen (14) public secondary schools in Obio/Akpor Local Government Area of Rivers State, Nigeria. The low achieving students in Mathematics were those who obtained below

40% average score in Mathematics at the end of the session as shown in the schools' records. A sample size of 210 low achieving students in mathematics from seven (7) secondary schools was used. Purposive sampling and simple random sampling (balloting) techniques were adopted to draw the sample. Two research questions and two null hypotheses guided the study. Three instruments were used for data collection, namely: Big five personality traits assessment scale (BPAS) – used to collect data on students' personality traits, learned helplessness scale (LHS) – used to measure learned helplessness among low achieving students, and diagnostic mathematics test (DMT) – used to identify and re-confirm the low mathematics achievement status of the students under study as indicated in records kept by their schools. The instruments are validated in terms of content and face values.

The reliability of the instruments were determined through test-retest method. The instruments were administered twice, giving two (2) weeks interval on a sample different from the study sample. Pearson Product Moment Correlation statistics was used to correlate two sets of the scores. The coefficient values obtained were 0.97, 0.98, 0.99, 0.83, 0.99, 0.89 and 0.73 for neuroticism, extraversion, openness to experience, agreeableness, conscientiousness, learned helplessness and diagnostic mathematics tests respectively. Multiple regression and Pearson product moment correlation statistics were employed to answer the research questions while Anova and t-test associated with multiple regression were used to test the null hypotheses at 0.05 level of significant.

RESULTS

Results got after data analysis were presented in the tables below.

Table 1: summary of multiple regression analysis of the relationship between the joint personality traits and learned helplessness among low achieving students in mathematics

Variables	Mean	S D	R	Rsquare	Adjusted R
Learned Helplessness	66.31	15.21			
Neuroticism	26.46	10.17	0.289	0.084	0.061
Extraversion	24.41	10.06			
Openness to Experience	22.50	10.57			
Agreeableness	32.67	5.69			
Conscientiousness	33.13	4.99			

The result in table 1, revealed mean scores of 66.31, 26.46, 24.41, 22.50, 32.67 and 33.13 respectively for the students in learned helplessness, neuroticism, extraversion, openness to experience, agreeableness and conscientious.

The multiple regression coefficient obtained was 0.289 while the R^2 was 0.084. This means that the five personality traits jointly had low positive relationship with learned helplessness, as only 8.4% of the variation in learned helplessness and mathematics achievement among the low achieving students can be explained by their personality traits. The remaining 91.6% may be due to other factors outside the scope of this study.

Table 2: Pearson product moment correlation analysis showing the relationship between Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness (independently) and learned helplessness

	Learned helplessness	N
Learned helplessness	1.000	210
Neuroticism	-0.113	210
Extraversion	-0.221	210
Openness to experience	-0.177	210
Agreeableness	0.023	210
Conscientiousness	0.088	

Results in table 2 showed an r-value of 0.113 for neuroticism and learned helplessness. This result indicated a low negative relationship between neuroticism and learned helplessness. An r-value of -0.221 was obtained for extraversion and learned helplessness. This result showed a low negative relationship between extraversion and learned helplessness. When agreeableness was correlated with learned helplessness, an r-value of 0.23 was obtained. This result indicated a low positive relationship between agreeableness and learned helplessness. An r-value of 0.088 was obtained when conscientiousness was correlated with learned helplessness. This result indicated a low positive relationship between conscientiousness and learned helplessness.

Table 3: Summary of Anova associated with multiple regression, showing how significant the relationship between the five personality traits and learned helplessness among low achieving students in mathematics is

Model	sum of squares	Df	Mean squares	F	Sig
Regression	4048.70	5	809.74	3.73	0.003
Residual	44303.18	204	217.17		
Total	48350.88	209			

Table 3 showed that the calculated f-value of 3.73 was significant at 0.003 level which is less than the chosen 0.05 level of probability. Therefore the null hypothesis was rejected. This implies that there was a significant relationship between the joint personality traits of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and learned helplessness among low achieving students in mathematics.

Table 4: Summary of t-test analysis associated with multiple regression showing the relative contribution of each of the personality traits to learned helplessness

			Model	Unstandardized coefficients	Sig
	B	Standard error	Beta		
Constants	75.527	10.162	7.432		0.000
Neuroticism	-0.173	0.115	-0.115	-1.496	0.136
Extraversion	-0.344	0.107	-0.228	-3.219	0.001
Openness to Experience	-0.128	0.111	-0.089	-1.154	0.250
Agreeableness	0.061	0.180	0.023	0.342	0.733
Conscientiousness	0.140	0.207	0.046	0.673	0.502

The result in table 4 revealed that the beta value for neuroticism was 0.115, t-value was -1496, significant at 0.136. Extraversion had beta value of -0.228, t-value was -3.219, significant at 0.001. For openness to experience, the beta value was -0.089, t-value was -1.154, significant at 0.250. In the case of agreeableness, the beta value was 0.023, t-value was 0.342, significant at 0.733. The beta value for conscientiousness was 0.046, t-value was 6.673, significant at 0.503.

However extraversion was significant at 0.001, which is less than the chosen level of probability, therefore null hypothesis 2 with regard to extraversion was rejected.

DISCUSSION OF FINDINGS

The discussion of findings of this study was based on the results of the research questions stated and the null hypotheses formulated and tested. In the case of relationship between joint personality traits of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and learned helplessness among low achieving students in mathematics. The results obtained indicated that there is a low positive relationship between the joint personality traits and learned helplessness. On application of Anova associated with multiple regression, it was found that the five personality traits jointly had significant relationship with learned helplessness, which is similar to the findings of Fayombo (2010), which indicated significant relationship between the Big five personality traits and psychological resilience.

For relationship between the independent personality traits of (Neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and learned helplessness among low achieving students in mathematics. The results got indicated that personality trait of neuroticism ($r = 0.113$), extraversion ($r = 0.221$) and openness to experience ($r = -0.177$), each had low negative relationship with learned helplessness. On the other hand, the personality traits of agreeableness ($r = 0.023$) and conscientious ($r = 0.088$), each had low positive relationship with learned helplessness.

The results also revealed that the personality traits when taken independently on hypothesis testing, showed that only personality trait of extraversion had significant relationship with learned helplessness, other traits such as neuroticism, openness to experience, agreeableness and conscientiousness did not have significant relationship with learned helplessness. This finding is not in agreement with the findings of Maadikhah & Erfani, (2014) which indicated a non significant relationship between extraversion and learned helplessness. The difference in findings could be as a result of location of the study or statistical tool used.

RECOMMENDATIONS

The following recommendations were made based on the findings of the study:

- Government should employ guidance counselors in public secondary schools, to assist students with the problem of learned helplessness, especially those of extraversion personality trait, who may be more vulnerable to learned helplessness.
- Students especially the low achievers should through counseling be made aware of the possible relationship between their personalities and learned helplessness. Such information can help them in fighting against learned helplessness in their studies especially in mathematics.

CONCLUSION

This study found that the personality traits when taken jointly had low positive relationship with learned helplessness. The relationship was found to be statistically significant. The study also established that three out of the five personality traits-neuroticism, extraversion and openness to experience independently had low negative relationship with learned helplessness, while agreeableness and conscientiousness had low positive relationship with learned helplessness. The extraversion personality trait alone had significant relationship with learned helplessness. The other four personality traits did not significantly relate to learned helplessness.

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