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PARENTAL SOCIO-ECONOMIC STATUS AS A PREDICTOR OF SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN BIOLOGY IN ANAMBRA STATE

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ABSTRACT

The purpose of the study was to determine parental socio-economic status and self-motivation as predictors of secondary school students' academic achievement in Biology in Anambra State. One research question and one hypothesis guided the study. The study adopted correlational research design. The study was carried out in Anambra State with a population of 13, 598 (6, 277 males and 7, 321 females) biology senior secondary SS2 students in the 261 public secondary schools in Anambra State. The sample for the study comprised 840 SS 2 students for the 2021/2022 academic session. Multi-stage sampling procedure was employed. Two instruments, developed by the researchers were used to collect data. Face validation of the instruments were conducted by three experts. The reliabilities of the instruments were tested using Cronbach alpha method and the alpha coefficients obtained were 0.82 and 0.80 for each of the instruments respectively. Data collection was facilitated by the researchers with the help of 24 research assistants who were biology teachers from the schools used for the study. Research question was answered using standardized beta coefficients while hypothesis was tested using t-test at alpha level of 0.05. Findings indicated that parental socio-economic status predicted secondary school students' academic achievement scores more than the self-motivation scores. Accordingly, it was recommended among others that biology teachers should encourage students to be self-motivated so as to improve their academic achievement in Biology.

Keywords: Parents; Socio-Economic Status; Predictor; Academic Achievement; Biology

Introduction

In contemporary times, education is deemed critical to every human activity. More so, given the current wave of globalization and technological revolution, it is considered as a lifeline for efficient and effective instrument for the growth and development of human society. Going further, education facilitates the development of human capital towards socio-economic advancement of any nation. Suffice it to say that education starts from the home front-family. This explains why parents are seen as the first teacher of every child. Put differently, education cannot be separated from what transpires within the family. Ushie, Emeka, Ononga and Owolabi (2012) confirmed that family type, size, educational background and parental socio-economic status play

pivotal roles in children's educational attainment.

Parental socio-economic status is a situation based on family income, parental educational level and parent's occupation (Wakiuru, 2016). The leading indicators of parental socio-economic status are parents' level of education, profession, and economic income (Luo, Wang, Zhang, and Chen, 2016). Parson, Stephanie and Deborah (2011) noted that parental socio-economic status is an expression which is used to differentiate between people's relative status in the community regarding family income, political power, educational background and occupational status. Saifi and Mehmood (2011) added that parental socio-economic status is a combined measure of economic and social position of an individual or family relative to others on the basis of education, income, and occupation. Parental socio-economic status could be determined by parental level of income, parental occupation and parental educational attainment.

The fact that education is expensive could underlie the importance of parental income in the academic aspirations of students. Parental level of income goes a long way in determining the extent to which educational needs of children are catered for. Woolley and Bowen (2016) conceded that parents in high income occupations tend to place value on their children's education and set relatively high but attainable goals for them that ultimately result in high levels of academic achievement and academic motivation. More so, Woolley and Bowen remarked that high-income earning parents are perceived as having the potential to provide material support to their children in educational endeavours, thereby increasing their propensity of academic success. On the other hand, they argued that low-income earning parents have the tendency to have low ambitions and place a relatively low value on their children's education and worse still, their children will equally lack the requisite motivation for success in school. Families with high income level often are more successful in preparing their young children for school because of their financial strength to human resources such as private tutors to promote and support their children's academic development than families with low income level. According to Dramanu and Mohammed (2017), self-motivation is a central human stimulus which has the capacity to influence the academic performance of students at different levels. Motivation can affect achievement of students in core subjects such as Biology.

Biology as basic science subject, deals with the study of living things, it attempts to understand the teeming diversity of life on earth, a diversity of level we are all part of. The teaching of biology is very important because the knowledge of biology helps in improving the quality of life, as it helps to solve many societal problems relating to health, poverty, food shortage, crop production and environmental conservation (Ogunleye, 2012). The learning of biology in real life context is necessary for personal development and also, the development of scientific and technological world. It is in

recognition of this that achievement of students in biology has become expedient.

Achievement is a test of skills and knowledge acquired by students within a specified period of time in various fields of academic studies. In the opinion of Mberekpe (2013), it connotes a person's successful accomplishment in particular subject area as depicted by marks, grades and scores of descriptive commentaries. Academic achievement is ascertainable by examination marks, teachers' given grades and percentiles in academic subjects (Chowdhury & Pati, 2011). It is measured by terminal, annual or end- of-subject results of a student. To mark the end of secondary school education in Nigeria, students are subjected to an ordinary level examinations administered by the West Africa Examination Council (WAEC) and the National Examination Council (NECO). The academic prospects of students is considerably determined by their overall grade in these external examinations.

The achievement of students in the subject at external examinations in recent times in biology is not encouraging. This is evidenced from WAEC Chief Examiners' Reports between 2018 and 2021 which revealed the poor performance of students in the West African Examination Council (WAEC) examinations in the subject from 2018 to 2021. Document cited by the researcher in the office of the Post Primary School Service Commission, Anambra State showed the academic achievement of students in biology in WAEC in the State from 2018 to 2021 recorded that only 47.00 percent passed the subject in 2018, 48.70 percent in 2019, 49.00 percent in 2020 and 49.20 percent in 2021 (Details in Appendix F, page ---). This trend may not be unconnected to the fact that the subject is not being taken seriously by students. The poor achievement of secondary school students in biology has been a source of huge concern to stakeholders in the educational sector.

There are quite a number of factors that are responsible for the achievement of students. According to Scott (2012), the factors that determine the level and quality of students' academic achievement include: grades, attendance, extracurricular activities and behaviour. Grade is a common indicator of academic achievement. Bell (2011) asserted that in terms of grading, students demonstrate their knowledge by taking written and oral tests, performing presentations, turning in home work and participating in class activities and discussions. The teachers evaluate students' achievement by scoring their work using grade systems such as percentage (1-100), letters (A-F) and side notes to describe how well the student has done. Attendance is also an indicator of academic achievement because without it, it will be difficult to perform well in class. This is apparently the case given that a student has to be in class to benefit from the instructional delivery. This is to say that a student that is not present in class will not be able to give on the spur-of the-moment feedback which the teacher can use to identify areas of weakness or difficulties as the case may be. The areas of difficulties identified will help the teacher to consider either the revision of the learned

content or remediation as and where necessary.

Although, there are many factors responsible for students' academic achievement, the researcher has observed from literature reviewed that the influence of socio-demographic factor (family status) and psychological factor (self-motivation) on students' academic achievement in biology in Anambra State has not been ascertained by empirical investigation. It is against this backdrop that this study seeks to determine the contributions of parental socio-economic status and self-motivation to secondary school students' academic achievement in Biology in Anambra State.

Statement of the Problem

Secondary school students in Anambra State seem not to be stimulated enough to take Biology as a serious subject. Perhaps, this could be responsible for the poor academic achievement in external examinations from the available records of WAEC Biology result from 2018- 2021. There has been concern over the continuous decline in the academic achievement of students in Biology. The blaming game among various educational stakeholders on who is responsible for students' poor academic achievement has motivated the researcher to investigate students' achievement from their prevailing socio-demographic and psychological factors.

There are many variables that may interplay with secondary school students' achievement in biology. The influence of socio-demographic and psychological factors on students' academic achievement in the subject is not clearly known. More so, a diligent search in the internet (web) and public universities' libraries indicates paucity of extensive empirical researches on the influence of socio-demographic factors (parental educational attainment, parental level of income and parental occupation) and self-motivation on students' academic achievement in Biology in Anambra State. It is this discovery that motivated the researcher to examine parental socio-economic status and self-motivation as predictors of secondary school students' academic achievement in Biology in Anambra State.

Research Question

One research questions guided the study:
What is predictive value of parental socio-economic status on academic achievement of secondary school students in Biology?

Hypotheses

Parental socio-economic status does not significantly predict secondary school students' academic achievement in Biology.

Research Method

The study adopted correlational research design. The study was carried out in Anambra State. The population of this study was made up of 13, 598 (6, 277 males and 7, 321 females) biology senior secondary SS2 students in the 261 public secondary schools in Anambra State. The sample for the study comprised 840 SS 2 students for the 2021/2022 academic session. Multi-stage sampling procedure was employed. Two instruments, developed by the researchers

were used to collect data. Face validation of the instruments were conducted by three experts (two in the Department of Science Education (Biology and Mathematics options) and another in Department of Educational Foundations (Measurement, Evaluation and Research), both from the Faculty of Education, Nnamdi Azikiwe University, Awka. The reliabilities of the instruments were tested using Cronbach alpha method and the alpha coefficients obtained were 0.82 and 0.80 for each of the instruments respectively. These values were considered adequate and the instruments adjudged reliable. Data collection was facilitated by the researchers with the help of 24 research assistants who were biology teachers from the schools used for the study. Research question was answered using standardized beta coefficients while hypothesis was tested using t-test of significance of beta coefficients at 5% level of significance with the decision rule that the null hypothesis was rejected if p-value was less than the alpha level of 0.05; otherwise the null hypothesis was not rejected.

Presentation of Results

Research Question 1: What is predictive value of parental socio-economic status on academic achievement of secondary school students in Biology?

This question is answered, using the standardized regression coefficients. The result is presented in Table 1.

Table 1: Unstandardized and Standardized Coefficients Predicting Secondary School Students' Academic Achievement Contributed by the Variances in Parental Socio-economic Status Scores (n=780).

Model	Unstandardized *B*	Std Error	Standardized β
Constant	61.786	3.191	
Parental Socio-Economic Status Scores	-.342	.140	-.087

The regression coefficients presented in Table 1 show that the standardized regression coefficients (β) for parental socio-economic status scores is -.342. Using the standardized beta (β) for comparison, parental socio-economic status predicted secondary school students' academic achievement scores.

Hypothesis 1: Parental socio-economic status does not significantly predict secondary school students' academic achievement in biology. Data for the hypothesis is presented in Table 2.

Table 2: Test of Significance of Unique Contributions of Parental Socio-economic Status and Self-Motivation Scores to Secondary School Students' Academic Achievement Scores (780).

Model	Unstandardized *B*	Std Error	Standardized β	T	p-value	Decision
Constant	61.786	3.191		19.365	.000	Significant
Parental Socio-economic Scores	-.342	.140	-.087	-2.436	.015	Significant

As shown in Table 2, parental socio-economic scores with β value of -.087 significantly predicted secondary school students' academic achievement, $t(2,779)=-2.436$, $p=.015$. Since the *p*-value is less than 0.05, the null hypothesis is rejected.

Summary of Findings

1. Parental socio-economic status predicted secondary school students' academic achievement scores more than the self-motivation scores.

2. Parental socio-economic status scores significantly predicted secondary school students' academic achievement in biology.

Discussion of Findings

The finding of the study showed that an increase in parental socio-economic status decreases students' academic achievement in Biology. The indication here is that the high parental socio-economic status does not guarantee high academic achievement of students in biology. This may not be unconnected to the fact that students from high parental socio-economic status are bound to have poor study skills as well as poor test-taking skills which predispose them to high test anxiety. The consequence of high test anxiety in Biology is poor achievement in Biology. Inconsistent with the finding of the current study is the position of Abdu-Raheem (2015) that there was a positive relationship between parents' socio-economic status and academic performance of secondary school students. In similar vein, Soharwardi, Fatima, Nasir and Firdous (2020) contended that the income of father and education of both father & mother have a positive impact on the academic performance of the students. Mother education, however, has a greater impact on the academic outcomes of the students as compared to father education.

The revelation of the finding of the study was that parental socio-economic status scores significantly predicted secondary school students' academic achievement in biology. The deduction here is that how well a student performs in biology is a function of their parents' socio-economic status. In other words, parental socio-economic status is a significant contributor to students' academic achievement in Biology. Corroborating the finding of the current study is the position of Fekadu, Negassa and Tegegne (2019) that family size, average monthly income, parents' occupation and educational level have statistically

significant contribution for students' academic achievement at 5% level of significance.

Conclusion

Based on the findings of the study, it was concluded that while parental socio-economic status scores significantly predicted secondary school students' academic achievement in biology. In addition, parental socio-economic status accounted for a great proportion of variance in students' academic achievement scores in biology.

Recommendations

In view of the findings of the study, some recommendations were made. They are thus stated:

1. Biology teachers should encourage students to be self-motivated so as to improve their academic achievement in Biology.
2. Guidance and Counsellors should schedule counselling sessions for students from parents with high socio-economic status on the need to look away from their parents' socio-economic status and work hard towards improving their academic achievement in Biology.

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