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# Effect of Socioeconomic Status on Undergraduate Physics Students' Academic Performance in Universities in Rivers State, Nigeria

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**Abstract** This study investigated the effect of socio-economic status on undergraduate Physics students' academic performance in selected universities in Rivers state. The researchers adopted ex-post factor design. The population covered all undergraduate physics students in Rivers state, Nigeria .Proportional stratified random sampling technique was used after which Taro Yamene formula was applied to get a sample size of 230. Two instruments were developed for data collection. A developed questionnaire titled "Parental Socio-Economic Status Questionnaire (PSESQ)" and a checklist titled "Undergraduate Physics Students Academic Performance (UPSAP)". PSESQ elicited information from the socio-economic status of students' parents while UPSAP elicited information of students' academic performance. The instruments were validated by two experts in science education .Four research questions and four hypotheses were formulated to guide this work. The data were analyzed using ANOVA to answer the research questions while Post Hoc Test was used to test the hypotheses at 0.05 level of significance. The results of the study showed that parental socio-economic status is a variable that influence undergraduate Physics students' academic performance because there was significant difference in parental socio-economic status and undergraduate physics students' academic performance. From the findings of this study, it was recommended that parents should strive to further their education, parents should engage themselves in multiple occupations to increase their income. Also, Government should make a policy on family planning programmes that will encourage parents limit numbers of children so as to give them good education.

**Keywords** Socioeconomic Status, Physics Students, Academic Performance, Nigeria

## 1. Introduction

Education in the generic and global context is a strategic instrument for social and economic transformation [1]. Corroborating this statement, Gbenda & Akume [2] posited that education is intended to improve the personal life of the student in terms of the knowledge and skills which he requires and which enhances his quality of life and contributes to the well-being of his society. Similar to their opinion, Chima [3] reported that one of the objectives of education is to adequately equip the child with the necessary skills and knowledge needed for effective participation and contribution to national development .There are various definitions of education. Webster dictionary defines education as the process of educating or teaching. It further explained that, to educate means, to develop knowledge, skill, or character of the person. Thus, Denga [4] defined education as the means to develop the knowledge, skill, or character of a student. Uwaifo and Uddin [5] defined education as the formal process by society to deliberately transmit its accumulated knowledge, skills, habits, customs and values from one generation to the next. Ikemelu [6] defined education as an instrument of development, adaptation and survival which emanates from teaching and learning that gears towards the actualization of curriculum goals.

Agreeing with their definitions, Binitie, Ezzeh and Akhator [7] highlighted that through education each individual is able to acquire knowledge, skills and values which are necessary in the development of any nation.
The importance of education according to Okubanjo [8] in the development of the society has made government at all levels to be committed to the provision of educational opportunities to its citizenry .Corroborating this, Bereday [9] remarked that distinguished economists had confirmed the conviction long held by educators that poor countries would become rich only if they invested heavily in education. The technological potentials and entrepreneurial skills and development of any nation could be more accurately measured by the quality of its physics education provided [10]. Similar to their opinion Ogunneye cited in Utibe, et al [11] asserted that the knowledge of Physics helps to transform a nation through entrepreneurial skills, creation of jobs and socioeconomic empowerment in Science, Technology, Engineering and Mathematics (STEM). The following objectives of (STEM) among others were listed in Muhammad (2017) work:

1. Improving people who can apply scientific knowledge to the improvement of the society.
2. Provide knowledge, technical and applied skills necessary for agriculture, industrial and economic development.
3. Enable young men and women have an understanding of the changing world.
4. Communicating the spirit of science and developing peoples' capacity to use it's value.

With these stated objectives above, it is very clear that physics education has a correlation with technological development of any nation. Each one of these: science, technology and engineering cannot be without physics. For instance technology is Physics because all of these, aeroplane, car, ship, refrigerator, iron, water heater, computer, television, machines, computer, x-ray, electricity etc. requires the knowledge of Physics for their actualization. No wonder one of the objectives of teaching physics as stated by Federal Republic of Nigeria (FRN, [12]) is to acquire essential scientific skills and attitudes as preparation for technological application. That is to say that any nation expecting to enjoy the benefits of technology will consciously invest in physics education. However, performance of physics students over the years has been showing poor performance [13]. If this ugly trend continues, it is the society that will be at loss since the objectives of physics education which mainly is for the technological development of a nation will not be achieved or will be very minimal.
Allis and Kamel [14] as cited in Jamillah [15] asserted that students' performance (academic achievement) plays an important role in producing the best quality graduates who will become great leaders and manpower for the country thus responsible for the country's economic and social development. Supporting them, Jamillah [15] reported that the social and economic development of the country is directly linked with students' performance. Physics students performance is not encouraging and if this continuous the objectives of STEM education as earlier stated will not be met by the citizens of a nation. Various researchers [15-20] have repeatedly said that one of the reasons for this re-occurring failure is as a result of socioeconomic status of parents. Supporting these findings, Graetz [21] cited in Jamillah [15] conducted a study on socio- economic status of the parents of students and concluded that socio economic background has a great impact on student's academic performance.
However, various researchers have attributed poor performance in physics to different reasons. Siegfried & Fels [22], Anderson & Benjamin [23] cited in Jamillah [15] listed students' effort and previous schooling. Also, Ali et al [18] cited in Jamillah [15] listed gender, age, schooling, father/guardian social economic status, residential area, medium of schooling, tuition trend, daily study hours and accommodation trend as factors affecting academic performance.
Any country can be categorized into developing due to its scientific and technological development. Ejiogu [24] described a developing nation as that nation in which the citizens have access to social amenities that will improve their well-being. Agbo [25] revealed that the main characteristics of a developed nation are high income per capita, high human development index, high gross domestic product, more energy consumption, more produce and trade in consumer goods and very high literacy level. He added that a typical developing nation has a shortage of food, few sources of power and a low gross national product (GNP) which is the value of all the goods and services produced by the country during a year. In continuation, he reiterated that Nigeria is often described as a developing country because of the absence of many indices of development like infrastructure, access to quality education and medical facilities. For Nigeria to be included among developed

nations in the world, the Government must invest heavily on physics education to meet up with the technological demand of the world which will eventually close the gap in socioeconomic status of her citizen.

Socio-status is the honour or prestige attached to one's position in the society, or it may also refer to a rank or position that one hold in a group within the society while economic status has to do with the financial standing or strength of an individual. Dienye [26] defined socio-economic status as a form of inequality in which categories are systematically in an hierarchy on the basis of their access to scarce but valued resources. Shittu [27] cited in Olofinniyi, Bulus, Meseko, Temaugee, Agada and Ocheido [28] in his view, defined socio-economic status as an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position in relation to others. Also, Eitzen [29] in Alade, Nwadingwe &Victor [30] defined socio economic status (SES) as a function of parental education, occupation and income.

Socioeconomic status is classified into three groups namely upper, middle and lower class. Sitorus [31] cited in Jaburadin and Darman [32] reported that the upper socio-economic status was the status or position of a person in the community who obtained based on classification according to wealth, where the wealth is more than wealth average in common society and the wealth fulfil their needs well. Buzzle [33] also cited in Jaburadin and Darman [32] provided limitation to middle socioeconomic status is the status of a person between the lower and upper class, including professionals, skilled workers, and also lower and middle management. Sitorus [31] in Jaburadin and Darman [32] stated again that lower socioeconomic status was a person's position in society that is obtained based on classification according to the riches, where the assets held include less when compared to the average of society in general and are not able to fulfil the needs of everyday life. Obidi [34] observed that the upper class children attend schools known for high academic excellence, adequate staffed and equipped, with conducive environment for studying at exhorbitant fees while the lower class children attend public primary and secondary school with difficulty. He further asserted that sometimes they are driven from school due to non-payment of school fees and this has always created inequality among students as a result of socioeconomic status of parents. This is further supported by Eamon [35] in Ibok and Uko [20] who observed that students from low socio-economic status or area show low performance in studies and obtained low scores as compared to the other students or their counterparts.

The European Union Monitoring Report [36] stated that students whose parents have tertiary level of education perform an average significantly better in test of sciences, reading and writing ability than those whose parents have only basic schooling or illiterates [37]. Okeke [38] reported that non-educated parents might not have the capacity to send all their children to school, generally due to the problem of financial inadequacies. Jabaruddin and Darman [32] noted in their study that if the family does the responsibility well, it will grow generation of qualified and reliable persons as the pillars of the nation's progress. Still in their view, conversely, if the family does not do the responsibility properly, it will grow generations with problems that can be a social burden for the nation. Nyama [19] cited in Ibok & Uko [20] maintained that the performance statistics of students from parent with high income level often have all it takes to need at home, libraries, radio, television, video and even literate parent with whom they can sit down and chat intelligently. The relationship between family size and academic performance of a student is brought into focus by Yoloye [39] in Ogundele [40] in Alade et al [30] that it is reasonable to expect that the father with several wives would be under greater financial strain than the father only with one wife, and therefore the polygamous man may have greater difficulty in sending his children to fee paying schools. Children whose families are of high educational scales have a statistically far better chance of participating in Tertiary Education [41] in Olofinniyi et al [28]. However, Alade et al [30] in their view observed that not all families can be classified accordingly to the criteria discussed here, some parents are very well educated but have very low income, while some parents have very high incomes but are not well educated for example (business men). It is unethical that citizens of the same nation cannot get the same educational opportunity. Who should be blamed or who should the onus lie on? Should we apportion blame to the Government or the parents? What then can be done to remedy or bring to the barest minimum this challenge?

Jurkiewicz [42] stated that evidence of ethical variance across socio-economic status (SES) is particularly notable in the aftermath of Hurricane Katrina because of the enormity of the devastation and the disparate

economic circumstances of those affected by it. According to her, at the lowest levels, those in need of food, shelter, and security will likely seek to satisfy those basic requirements through any means necessary, whether illegal or unethical, or both. It is the society which bears the brunt of these misbehaviours. In the same vein, any child who does not have the basic needs of life cannot be emotionally fit to face any academic work or come out with good grades. It therefore behove on the Government and parents to do all they can to reduce the gap existing in socioeconomic status so as to produce good students who will in turn contribute to the economic development of their nation and at the same time give themselves a better life.

Socioeconomic empowerment of the citizens of a nation is therefore the only way to reduce the gap between the three middle classes listed above. Isa, Josiah, Mafulul & Fasanya [43] opined in their study that any society that is deficient in manpower development in the direction of Physics, that society would also be deficient in scientific and technological advancement. Supporting this, Nwankwo and Okafor [44] stated in their work that the development of any nation requires that her citizens should be adequately empowered to be able to contribute their quota meaningfully and appropriately as responsible productive citizens. Ukpong and George [45] as cited in Akpan, Etiubon and Udosen [46] conceive socioeconomic empowerment as the acceleration of economic growth, reduction in inequality and the reduction of poverty through and also the desires of the individuals, social groups and human capital development.

Nigeria as a nation, needs a functional educational system that can equip learners with requisite knowledge, attitudes and skills to enable them relate and adapt successfully to the rapid socio-economic, cultural and political changes in the society [25]. Much then is said that formal education remains the vehicle for socio-economic development and Social mobilization in any society [28]. Supporting them, Ndirika and Aguommuoh [47] stated that the ability of any country to create, apply and diffuse scientific and technological knowledge is a major determinant of its socioeconomic development and national competitiveness.

Abdullah cited in Olofinniyi et al [28] reported that quality education is a key to providing the right human resources for social and economic production sectors which facilitates wealth creation and improves living standards. Also, Olofinniyi et al [28] revealed in their work that the best and simplest way to disseminate knowledge to all those who deserve it, is through free education. They further asserted that free education is an all round education, being provided for a child freely by Government, the Philanthropists, and other agencies without him/her or the parent paying a penny. When the Government of any nation key into free education, the gap between socioeconomic status of parents will be minimal since what constitute stress to those barely meeting up with the demands of their children education will be greatly reduced.

It is against this background that the researchers deemed it necessary to investigate on effect of socio-economic status on undergraduate physics students academic performance in Rivers State.

**Objectives of the Study**

The main objective of the study is to examine the effect of socio-economic status on academic performance of undergraduate physics students in Rivers state, Nigeria. Specific objectives of the study include:

**1:** To ascertain whether socio-economic status of parents' level of education affects physics students academic performance in Rivers state.

**2:** To ascertain whether socio-economic status of parents' income level affect Physics students academic performance in Rivers State.

**3:** To ascertain whether socio-economic status of parents' family size affect Physics students academic performance in Rivers State.

**4:** To ascertain whether socio-economic status of parents' occupation affect physics students academic performance.

**Research Questions**

**1:** To what extent does socio-economic status of parents' level of education affect undergraduate physics students academic performance in Rivers state?

**2:** To what extent does socio-economic status of parents' income level affect undergraduate Physics students academic performance in Rivers State?
**3:** To what extent does socio-economic status of parents' family size affect undergraduate Physics student's academic performance in Rivers State?
**4:** To what extent does socio-economic status of parents' occupation affect undergraduate physics students academic performance?

**Research Hypotheses**

- **$Ho_1$**. There is no significant difference between undergraduate physics students academic performance and parents' level of education in Rivers state.
- **$Ho_2$:** There is no significant difference between undergraduate Physics students academic performance and parents' income level.
- **$Ho_3$:** There is no significant difference between undergraduate Physics students academic performance and parents' family size.
- **$Ho_4$:** There is no significant difference between undergraduate Physics students academic performance and parents' occupation.

## 2. Methodology

The study is an ex-post facto design .The population for this study covered all undergraduate Physics students in Rivers State, Nigeria. Proportional stratified random sampling technique was used of which Taro Yamene formula was used to get a sample size of 230. Two instruments were developed for this study for data collection. A developed questionnaire titled "Parental Socio-Economic Status Questionnaire (PSESQ)" and a checklist titled "Undergraduate Physics Students Academic Performance (UPSAP)". PSESQ elicited information from the socio-economic status of students' parents while UPSAP elicited information on undergraduate physics students academic performance. Results showing performance were collected from the physics department of the universities. The instruments were validated by two experts in science education. The instruments were administered on 30 Students who are not part of the sampled population for this study to test its reliability. Four research questions and four hypotheses were formulated to guide this work. The data were analyzed using ANOVA to answer the research questions while Post-Hoc Test was used to test the hypotheses at 0.05 level of significance.

## 3. Results

**Research Question 1:** To what extent does socio-economic status of parents' level of education affect undergraduate physics students' academic performance in Rivers state?
**$Ho_1$**. There is no significant difference between undergraduate physics students' academic performance and parents' level of education in Rivers state.

**Table 1A:** Summary of ANOVA Analysis on the Influence of parents' Educational level on students academic performance

| **Group** | **N** | **Mean (x)** | **S.D** |
|---|---|---|---|
| Primary | 67 | 11.73 | 2.52 |
| Secondary | 52 | 12.21 | 1.53 |
| Tertiary | 111 | 15.20 | 3.05 |

| **Source of variation** | **SS** | **dF** | **MS** | **F** | **Sig.** | **Decision** |
|---|---|---|---|---|---|---|
| Between group | 615.984 | 2 | 307.992 | 44.774* | .000 | |
| Within groups | 1561.447 | 227 | 6.879 | | | |
| **Total** | **2177.461** | **229** | | | | |

*Significant, P(0.000)<0.05 level of significance

Table 1A Shows the Summary of ANOVA Analysis on the Influence of parent's
Educational level on student's academic performance. The mean and standard deviation of students whose parents are of the primary level of education are 11.73 and 2.52 respectively. Their secondary counter parts had mean and standard deviation of 12.21 and 11.53 respectively while students whose parents are at tertiary level

had mean and standard deviation of 15.20 and 3.05 respectively. A closer look at those mean values reveals that students whose parents have tertiary education performed better than those who have primary and secondary education, they were followed by those parents at secondary level and those of the primary came last. The result is that parents' level of education affects undergraduate Physics students academic performance.

On further statistical analysis of the mean values using Analysis of Variance, the calculated F(2,227)=44.774 is significant since p(.000) is less than 0.05 level of significant. Hence, the stated hypothesis is rejected. The result is that there is significant difference between undergraduate Physics students academic performance and parents' level of education.

**Table 1B:** Post-Hoc Test on Students Academic Performance in Physics of Different Parents' Level of Education

| Comparison | MD | Sig. |
|---|---|---|
| Primary versus Secondary | -.480* | .323 |
| Primary versus Tertiary | -3.467* | .000 |
| Secondary versus Tertiary | -2.987* | .000 |

*significant, P<0.05 level of significance

Table 1B is the post hoc test performed on undergraduate physics students academic performance in physics whose parents are of different educational level. The results revealed that there is significant difference between the performance of undergraduate physics students whose parents have primary education and those whose parents have tertiary education and also between secondary and tertiary education showing where the difference lies. There is no significant difference between the performance of undergraduate physics students whose parents' have primary education and those whose parents have secondary education.

**Research Question 2:** To what extent does socio-economic status of parents' income level affect undergraduate Physics students academic performance in Rivers State?

**$Ho_2$:** There is no significant difference between undergraduate Physics students academic performance and parents' income level.

**Table 2A:** Summary of ANOVA Analysis on the Influence of Parents' Income Level on Students Academic Performance

| Group | N | Mean (x) | S.D |
|---|---|---|---|
| 18,000 – 36,000 per month | 96 | 11.93 | 2.295 |
| 37,000 – 55,000 per month | 33 | 12.06 | 2.150 |
| 56,000 – 73,000 per month | 35 | 16.09 | 2.106 |
| 74,000 and above per month | 66 | 15.18 | 3.167 |
| **Total** | **230** | **13.51** | **3.084** |

| Source of Variation | SS | Df | MS | F | Sig. | Decision |
|---|---|---|---|---|---|---|
| Between group | 726.531 | 3 | 242.177 | 37.722 | .000 | |
| Within groups | 1450.929 | 226 | 6.420 | | | |
| **Total** | **2177.461** | **229** | | | | |

Table 2A shows the mean, standard deviation and ANOVA summary of the difference in academic performance of students whose parents' income level differs. The mean and standard deviation of student whose parents earned 18,000 – 36,000 per month are 11.93 and 2.295, those who earned 37,000 – 55,000 has a mean of 12.06 and standard deviation of 2.150, those who earn 56,000 – 73,000 per month are 16.09 and 2.106 and parents who earned 74,000 and above per month have a mean of 15.18 and standard deviation of 3.167.

A closer looker at the mean values reveals that students whose parents earned 56,000 – 73,000 per month performed better than those whose parents earned 74,000 and above per month followed by parents who earned 37,000 – 55,000 per month and the category that came last are those whose parents earned 18,000 – 36,000 per month. Result is that the parents' income level affects undergraduate physics students' academic performance.

On further statistical analysis of the mean values using Analysis of Variance (ANOVA), the calculated F(3,226)=37.722 is significant. Since P(.000)<0.05 level of significance. Hence the stated hypothesis is rejected. The result is that there is significant difference between undergraduate Physics students academic performance and parent's income level.

**Table 2B:** Post Hoc Test on Students Academic Performance in Physics of Different Parents' Income Level

| Comparisons | | MD | Sig. |
|---|---|---|---|
| 18,000 – 36,000 per month | versus 37,000 – 55,000 per month | -.134 | .995 |
| 56,000 – 73,000 per month | | -4.159* | .000 |
| 74,000 and above per month | | -3.255* | .000 |
| 37,000 – 55,000 per month | versus 56,000 – 73,000 per month | .134* | .995 |
| 74,000 and above per month | | -4.025* | .000 |
| 18,000 – 36,000 per month | | -3.121* | .000 |
| 56,000 – 73,000 per month | versus 18,000 – 36,000 per month | 4.159* | .000 |
| 37,000 – 55,000 per month | | 4.025* | .000 |
| 74,000 and above per month | | .904 | -.59 |
| 74,000 and above per month | versus 18,000 – 36,000 per month | 3.255* | .000 |
| 37,000 – 55,000 per month | | 3.121* | .000 |
| 56,000 – 73,000 per month | | -.904* | .408 |

*Significant, P<0.05 level of significance

Table 2B is the post hoc test performed on the students' academic performance in Physics whose parents earn different income level per month. The result reveals that there is significant difference between the performance of undergraduate physics students whose parents earn 56,000 – 73,000 per month, 74,000 and above per month and those whose parents earn 55,000 naira below. There is no significant difference between the performance of undergraduate physics students whose parents earn 37,000 – 55,000 and those whose parents earn 18,000 – 36,000 per month.

**Research Question 3:** To what extent does socio-economic status of parents' family size affect undergraduate Physics students academic performance in Rivers State?

**Hypothesis 3:** There is no significant difference between undergraduate physics students academic performance and parents' family size in Rivers state.

**Table 3A:** Summary of ANOVA Analysis on the Influence of Parents' Family Size on Students Academic Performance

| Group | N | Mean (x) | S.D |
|---|---|---|---|
| 3 – 5 persons | 75 | 14.25 | 2.776 |
| 6 – 8 persons | 71 | 13.39 | 3.205 |
| 9 and above persons | 84 | 12.95 | 3.143 |

| Source of variation | SS | Df | MS | F | Sig. |
|---|---|---|---|---|---|
| Between group | 68.507 | 2 | 34.253 | 3.689 | .027 |
| Within groups | 2108.954 | 227 | 9.291 | | |

*Significant, P(0.000)<0.05 level of significance

Table 3A shows the mean, standard deviation and ANOVA summary of the difference in academic performance of students whose parents have different number of students in their families. The mean and standard deviation of parents who have 3 – 5 children/persons in the family are 14.25 and 2.776, 6 – 8 persons or children in the family 13.39 and 3.205 while 9 and above children in the family had 12.95 and 3.143 respectively.

Looking at the mean values reveals that parents who have children 9 and above in the family did not perform well followed by parents whose children are 6 – 5 persons. Families with 3 – 5 children performed best. Result is that the number of persons in the family affects the academic performance of the students.

On further statistical analysis of the mean values using Analysis of Variance (ANOVA), the calculated F (2,227)=3.689 is significant. Since P(.000)<0.05 level of significance. Hence the stated hypothesis is rejected. The result is that there is significant difference between undergraduate Physics students' academic performance and parents' family size.

**Table 3B:** Post Hoc Test on Students Academic Performance in Physics on Parents' Different Family Size

| Parents' Family Size (i) | Parents' Family Size (j) | MD | Sig |
|---|---|---|---|
| 3 – 5 persons | 6 – 8 persons | 859 | .090 |
| | 9 and above persons | 1.301 | .008 |
| 6 – 8 persons | 3 – 5 persons | -859 | .090 |
| | 9 and above person | 442 | .369 |
| 9 and above persons | 3 – 5 persons | -1.301 | .008 |
| | 6 – 8 persons | -442 | .369 |

The mean difference is significant at 0.05

Table 3B is the post hoc test performed on the students' academic performance in Physics whose parents have different number of persons in the family. The result showed that there is significant difference between the performance of undergraduate physics students whose parents' family size is 3 - 5 and those whose parents' family size are larger. There is no significant difference between the performance of students whose parents' family size are all large.

**Research Question 4:** To what extent does socio-economic status of parents' occupation affect undergraduate physics students academic performance?

**$Ho_4$:** There is no significant difference between undergraduate Physics students academic performance and their parents' occupation

**Table 4A:** Summary of ANOVA Analysis on the Influence of Parents' Occupation on Student's Academic Performance

| Group | N | Mean (x) | S.D |
|---|---|---|---|
| Civil servant | 60 | 15.67 | 2.222 |
| Business/traders | 62 | 12.56 | 2.662 |
| Farmers | 37 | 11.57 | 2.544 |
| Self employed | 71 | 13.54 | 3.294 |
| **Total** | **230** | **13.51** | **3.084** |

| Source of variation | SS | Df | MS | F | Sig. |
|---|---|---|---|---|---|
| Between group | 474.143 | 3 | 158.048 | 20.970 | .000 |
| Within groups | 1703.318 | 226 | 7.537 | | |
| **Total** | **2177.461** | **229** | | | |

Significant, P(.000)<0.05 level of significance

Table 4A shows the mean, standard deviation and ANOVA summary of difference in academic performance of students whose parents have different occupations. The mean and standard deviation of students whose parents are civil servants are15.67 and 2.222 respectively, business/traders 12.56 and 2.622, farmers are 11.57and 2.544 while the self-employed are13.54 and 3.294 respectively. A closer look at those mean values reveals that students whose parents are civil servant performed better than those whose parents are self-employed, followed by students whose parents are businessmen/women and those whose parents are farmers came last. The result is that parents' occupation affect undergraduate physics students academic performance.

On further statistical analysis of mean values using Analysis of variance (ANOVA), the calculated F(3,226)=20.970 is significant since P(.000)<0.05 level of significance. Hence the stated hypothesis is rejected. The result is that there is significant difference between undergraduate Physics students academic performance and parents' occupation. The result of the F- value of 20.970 with p<0.05 shows statistically that at 0.005 level of significance, there is significant difference. Hence, there is significant difference between physics students performance and the different occupation of parents. Table 4B reveals that the p-value of 0.00 was less than the set p-value of 0,005.since the p-value of 0.03 is less than the set p-value of 0.005, the null hypothesis of no significant difference was rejected.

**Table 4B:** Post Hoc Test on Students Academic Performance in Physics of Different parent's Occupation

| Comparisons | | | MD | Sig. |
|---|---|---|---|---|
| Civil Servant | Versus | Business/Traders | 3.102* | 0.000 |
| | | Farmers | 4.099* | 0.000 |
| | | Self Employed | 2.131* | 0.000 |
| Business/Traders | Versus | Civil Servant | -3.102* | 0.000 |
| | | Farmers | 0.997* | 0.385 |
| | | Self Employed | -0.971* | 0.250 |
| Farmers | Versus | Civil Servant | -4.099* | 0.000 |
| | | Business/Traders | -0.997* | 0.385 |
| | | Self Employed | -1.968* | 0.007 |
| Self-Employed | Versus | Civil Servant | -2.131* | 0.000 |
| | | Business/Traders | 0.971* | 0.250 |
| | | Farmers | 1.968* | 0.007 |

*Significant, P<0.05 level of significance

Table 4B is the post hoc test performed on the student academic performance in Physics whose parents are engaged in different occupations. The results reveals that there is significant difference between the performance of undergraduate physics students whose parents are civil servants and every other occupation. Showing where the difference lies there is no significant difference between the performance of undergraduate Physics students' whose parents occupation is farming and those whose parents' occupation is trading/business or self-employed .

## 4. Discussion of Findings

### Effect of Parents' level of Education on undergraduate Physics Students Academic Performance

It was revealed in this study that students whose parents have tertiary education performed better than their secondary and primary counterparts, the researchers think this is because parents who have higher qualification will encourage their children to go higher than them in life. Similar findings were cited in Okeke [38], Ali et al [18], Alade et al [30], Devadoss & Foltz cited in Jamillah [15], Velez, Schiefelbein and Valenzuella in Olofinniyi and Ibok & Uko [28] but negates the findings of Pedrosa, Norberto, Rafael, Maia, Andrade, & Carvalho [48]. They reported in their study on social and educational background that students who mostly come from deprived educational background performed relatively better than others coming from higher educational area. This can be possible due to students personal effort to study irrespective of their socio economic background.

### Effect of Parents' Income Level on undergraduate Physics Students Academic Performance in Rivers State

The finding of this study showed that students whose parents earn huge amount of money per month performed better than those whose parents earned small amount of money per month. The reasons being that parents who earn huge amount of money provide all the necessary materials for their children's schooling. This finding confirms the opinion of Elechi and Ogbondah [49], Devadoss & Foltz cited in Jamillah [15] and Ibok and Uko [20]. Coleman [16] as cited in Archer [17] finding also agrees with this work, according to him income level of parents largely determines student achievement and what schools do doesn't matter because in the end poor kids learn very little and rich kids learn a lot .The finding of this study and others cited above contradicts the findings of Pedrosa, Norberto, Rafael, Maia, Andrade and Carvalho [48] cited in Jamillah [15] and Olofinniyi et al [28]. The study conducted by Olofinniyi et al [28] reported that there was no significant difference between the levels of sponsorship available to public school students in south west states, Nigeria. In similar manner, Pedrosa et al [48] in Jamillah [15] posited in their study on social and educational background pointed out that those students who mostly come from deprived financial background performed relatively better than others coming from higher financial background.

### Effects of Parents' Occupation on undergraduate Physics Students Academic Performance in Rivers State

The finding revealed that students whose parents' occupation are civil servant performed well better than the self-employed followed by business/traders and the farmers came last. The finding is consistent with an earlier

work by Kemjika [50], Ali, Haider, Munir, Khan & Ahmed [18] and Alade et al [30]. Velez et al in Olofinniyi et al [28] concluded in their studies that socio-economic status measured by parents' occupational status is positively associated with achievement in most of the cases.

**Effects of Parents' Family Size on undergraduate Physics Students Academic Performance in Rivers State**

The finding of this work revealed that parents who have many children or persons in the family did not perform well. The researchers think this is possible because their children were deprived of what they need to be academically fit for studies. This finding is in line with Nwachukwu [51] in Ibok and Uko and Ibok and Uko [20]. It also agrees with the finding of Ekpo [52] who examine family size, birth order and students' academic performance in Science Subject in Ugep Local Government Area of Cross River State, his results obtained amongst others, revealed that there is a significant influence of family size on students' academic performance in Science Subjects.

## 5. Conclusion

Based on the findings of this study, it was concluded that parents' educational level, income level, occupation and family size affects undergraduate physics students academic performance. In other words, socio-economic status of parents has significant effect on undergraduate physics students academic performance.

## 6. Recommendations

From the findings of this study, it was recommended that:

1. Government and Volunteers should award scholarship to students of low socioeconomic background, this will go a long way to reduce the gap between socioeconomic status of parents.
2. Parents should strive to further their education and should engage themselves in multiple occupations to increase their income so as to give adequate support to their children academics.
3. Government should make a policy on family planning programmes that will encourage parents limit numbers of children so as to give them good education.
4. Government should increase budgetary allocation for education so that students from lower socioeconomic status will be given better opportunities to compete with students from upper socioeconomic status thereby.
5. Government should give adequate support to parents through initiatives thereby improving their socioeconomic status so that they can give better education to their children which will eventually lead to better performance.

## References

[1]. Igbokwe, Charity O. (2013). "Recent Curriculum Reforms at the Basic Education Level in Nigeria Aimed at Catching Them Young to Create Change." *American Journal of Educational Research*, 3(1), 31-37.

[2]. Gbenda, B.L. & Akume, G.T. (2009). The implications of examination malpractices on national development and counseling intervention. *Journal of Counselling and Development*, 2, 104-117.

[3]. Chima, I.M. (2006). Self-confidence training and effective study habits as veritable strategies for curbing examination malpractices among secondary school students. The Nigerian Educational Psychologists. *Journal of the Nigerian Society of Educational Psychologists* (NISEP), 4(2), 314-327.

[4]. Denga, I.D. (2011). Moral and sociological foundations of education in Nigeria. Rapid Educational Publishers Ltd, Calabar.

[5]. Uwaifo, V. O. & Uddin, P.S.O. (2009). Transition from the 6-3-3-4 to the 9-3-4 System of Education in Nigeria: An Assessment of Its Implementation on Technology Subjects. *Studies on Home and Community Science*, 3(2), 81-86.

[6]. Ikemelu, C.R. (2015). Towards effective application of ICT education for classroom curriculum delivery: Science teacher perspectives. *56th Annual Conference of STAN*, 230 -238.

[7]. Binitie, P.A., Ezzeh, O.P. & Akhator, D. (2019). Assessment of availability and usage of various information and communication technology (ICT) tools in combating examination malpractice in senior secondary certificate examination (SSCE). *Science Teachers Association of Nigeria, 60th Annual Conference Proceedings,* 304 – 314.

[8]. Okubanjo, O.O. (2006). The need for effective parental attention in primary schools academic engagement. *Journal of the Nigerian Educational Psychologists (NISEP)*, 4(2)278-287.

[9]. Bereday, G. Z. F. (1969). Essays on world education: The crisis of supply and demand. New York: Oxford University Press.

[10]. Onwioduokit, A.F. & Efut, O.T. (2000). Enriching Physics Education in Nigeria to cope with the Challenges of the present millennium. *Paper presented at the 41st annual conference of STAN.*

[11]. Utibe, J.U., Onwioduokit, A.F. & Babayemi, O.J. (2019). Application of Physics and Technology Concepts of Maintenance of Tools for Socioeconomic Empowerment in Stem. *60th Annual Conference of Science Teachers Association of Nigeria (STAN) Proceedings*, 69-77.

[12]. Federal Government of Nigeria (FRN, 2009). *Senior secondary physics curriculum*. NERDC Press, Abuja: Nigeria.

[13]. Isola. O.M. (2010). Effects of standardized and improvised instructional materials on students' academic achievement in secondary school physics. *Unpublished M.Ed Thesis*; University of Ibadan, Nigeria.

[14]. Allis, M. S. & Kamel, M. I. (1999). Children Experiencing Violence. II: Relevance and Determinants of Corporal Punishment in Schools, Child Abuse and Neglect. DOI: 10.1016/S0145-2134(98)00084-2.

[15]. Jamillah, H. M. (2016). Factors Affecting Students' Academic Performance: A Case Study of Pupil Secondary School in Ilala District, Dar-Es-Salaam, Tanzania. A Published Dissertation Submitted in Partial Fulfilment for the Requirements of the Master Degree in Education.

[16]. Coleman, J. S. (1966). Equal schools or equal students?. *The Public Interest*, (4), 70.

[17]. Archer, J. (1999). Sanders 101. *Education Week*, 18(34), 26-28. Retrieved November 16, 2003, from Academic Search Elite.

[18]. Ali, S., Haider, Z., Munir, Khan, F. H. & Ahmed, A. (2013). Factors Contributing to the Students' Academic Performance. A case study of Islamia University, Sub-Campus. *Science and Education Journal*, 1(8) 1-10.

[19]. Nyama, O. (2006). Influence of family size on students' academic performance. *Journal of Career Assessment*, 3(4), 60-98.

[20]. Ibok, E. E. & Uko, J. D. (2020). Students' background variables and academic performance of senior secondary background variables and academic performance of senior secondary school Physics student in Ikot Ekpene Local Government Area of Akwa Ibom State.A published B.ed Degree.

[21]. Graetz, J. Y. (1995). Socio-economic status in Education research and policy.

[22]. Siegfried, J. & Fels, R. (1979). Research on teaching college economics. *Journal of Economic Literature*, 17(3), 923-939.

[23]. Anderson, G. & Benjamin, D. (1994). The determinants of success in University: Introductory economic course. *Journal of Economic Education*, 25 (2), 99-119.

[24]. Ejiogu, A. (2000). Morality and national development: A case for national rebirth. Lagos: Superlative Services Ltd. Federal Government of Nigeria (2004). The national policy on education. Lagos: *National Educational and Research Development Council*.

[25]. Agbo, N.O. (2014). The role of functional education in national development: The case of Nigeria. *A key note address at the maiden edition of the annual national conference organized by the School of General Studies*, Benue State Polytechnic, Ugbokolo, 25th June.

[26]. Dienye, P. (2012). Sociology of education: A handbook (2nd edition). New Owerre Springfield Publisher Ltd.

[27]. Shittu, M.R. (2004), "Socio-economic determinants of academic performance of secondary school students in Nigeria", University of Ilorin: An unpublished B. Ed project.

[28]. Olofinniyi O.E., Bulus G.B., Meseko S.A., Temaugee S.T., Agada E.J., Ocheido S. (2021). Family Socio-Economic Status in Relation to free Education Programme: The Implication on Student's Academic Achievement in Public Secondary School in South-West Nigeria. *British Journal of Education,* 9 (3), 55-68.

[29]. Eitzen.D. S & Smith K. E (2003) Experiencing poverty. Thompsonand Wadsworth, USA.

[30]. Alade, O.M., Nwadingwe, I.P., Ali, V.I., Haider, S., Munir, Z., Khan, F. H. & Ahmed, A. (2014). Socio-Economic Status and Gender as Predictors of Students' Academic Achievement in Economics. Factors Contributing to the Students' Academic Performance. A case study of Islamia University, Sub-Campus. *Journal of Education and Practice*, 5(9), 96 -110.

[31]. Sitorus. (2000). Sosiologi. Bandung: Cahaya Budi. Ukpong, D.E., George, I.N. (2012). Socioeconomic development of Nigeria and youth empowerment in the 21st century: implication for Akwa Ibom state. *Savap International Journal of Social and Humanitiez,* 3(3), 288-295.

[32]. Jabaruddin, A. & Darman, M. (2016).Educational Values in Different Social-Economic Status: A Study Case of Six Families in Maros. *International Education Studies*, 9(6), 223-228.

[33]. Buzzle. (2014). Mengenal Anatomi Kelas Menengah: Rentang Penghasilan Kelas Menengah. Makalah disampaikan pada Seminar Nasional Pembangunan Sumber Daya Manusia, Jakarta. Retrieved from www.ccsenet.org/ies. *International Education Studies,* 9(6).

[34]. Obidi, F.S. (2015). Effective teaching, effective learning. Boston, MacGraw Hill.

[35]. Eamon, G. C. (2015). Parental Status and Educational Achievement: A Review Article. *Anthropology & Education Quarterly*, 12 (4), 227-257.

[36]. European Union Monitoring Report (2013). Students Performance and Parents Education Level.

[37]. Dryler, H. (2008). Parental warmth, control and involvement in school. *Journal of cross-cultural psychology*, 33(2), 137-140.

[38]. Okeke, E.C. (2013). Sociology of Education: Concepts and Application. Owerri Springfield Publisher.

[39]. Yoloye, O. (1994): "Family background and academic performance in Ife primary school". An essay presented to the Faculty of Education University of Ife (Now Obafemi. Awolowo University, Ile-Ife.

[40]. Ogundele (1998): "A comparison of socio-economic background of parents and students' performance in secondary school. Okitipupa Division" an essay presented to faculty of education Obafemi Awolowo University, Ile-Ife.

[41]. Oloo, M.A. (2003). Gender disparity in student Achievement in day secondary schools. Migori: Maseno University.

[42]. Jurkiewiez, C. (2009).Class and Crisis: Socioeconomic Status and the Ethics of Individual Experience. The Public Manager, Tuesday July 28, 2009.

[43]. Isa, U.S., Josiah, M.I.Y. Mafulul, M. & Fasanya, G.A. (2019). The Role of Physics on the Socio-Economy Empowermebut of the Society: The Nigerian Experience. *Science Teachers Association of Nigeria (STAN), 60th Annual Conference Proceedings,* 364-369.

[44]. Nwankwo, M.C. & Okafor T.U. (2015). Refocusing physics education for creativity: An imperative for sustainable development. *STAN Journal*, 284- 290.

[45]. Ukpong, D.E. & George, I.N. (2012). Socioeconomic development of Nigeria and youth empowerment in the 21st century: Implication for Akwa Ibom state. *Savap International Journal of Social and Humanities,* 3(3), 288 – 295.

[46]. Akpan, O.A., Etiubon, U.R. & Udosen, N.I. (2019). Science, Technology, Engineering and Mathematics (STEM) Teachers' Preparedness for Socio-economic Empowerment of Senior Secondary Science Students in Nigeria. *Science Teachers Association of Nigeria, 60thAnnual Conference Proceedings,* 37-45.

[47]. Ndirika, C.M. & Agommuoh, C.P. (2019). Enhancing female participation in STEM education towards sustainable, inclusive and equitable development. *Science Teachers Association of Nigeria, 60th Annual Conference Proceedings,* 13 – 20.

[48]. Pedrosa, R H. L., Norberto J. W., Rafael P., Maia D., Andrade, C. Y. & Carvalho, B. S. (2006). *Educational and Social economic background of graduates and academic performance*. Paper Presented at the IMHE/OECD General Conference, Paris.

[49]. Elechi, G.E. & Ogbonda, L. (2006). Sociology Foundation of Education. Port Harcourt, Harvey Publications.

[50]. Kemjika, O. G. (2011). Theories and Practice of Career Development in Nigeria Education. Fobson Printing and Publishing Co. Ltd, Onitsha.

[51]. Nwachukwu, R. P. (2012). Parents' socio-economic status, home environment and students' study habits. Educational Research, 3 (3), 48-72.

[52]. Ekpo, A. (2010). 'Helping youth in care succeed: Influence of caregiver involvement on academic achievement' in Children and Youth Services. Education Review, 3(4), 2-10.