INTERNATIONAL JOURNAL OF EDUCATION, RESEARCH AND SCIENTIFIC DEVELOPMENT
https://www.ijresd.org
Print: 2992-5665 and Online: 2992-5673
Impact Factor: 5.2 Vol. 5, Issue 1. Jan 3, 2024

DISADVANTAGED CONDITION AS A CORRELATE TO ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN SCIENCE

[1]Uche Ekwutosi Doris and [2]Obikezie Maxwell Chukwunazo (Ph.D)

1 & 2 Department of Science Education Nnamdi Azikiwe University Awka

ed.uche@unizik.edu.ng; cm.obikezie@unizik.edu.ng

Abstract

This study investigated disadvantaged condition as a correlate to academic performance of senior secondary school students in science in Enugu North Local Area of Enugu State. The population of the study comprised of all the senior secondary school science students in Enugu North Local Government Area. The sample size of the study was made up of 909 senior secondary school students in co-education government schools (400 males, 509 females). The sample was drawn using standard Yamane 1967 which stated that a population of 5000 should have a sample size of 909 at + or - 3 %. Two purpose of study, two research questions and two hypotheses guided the study. Two instruments were used for the study namely Disadvantaged Condition Inventory (DCI) and Averaged Termly Score of Senior Science Secondary Students Performance (ATSSSSSP). The data collected were analysed using Pearson's Product Moment Correlation for both research questions and hypotheses which were tested at .05 level of significance. The results revealed a moderate positive correlation between disadvantaged condition and academic performance of senior secondary school students in science. Hence, there is significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science. And a low positive correlation between male and female senior science secondary school students' disadvantage condition and their academic performance. Hence, there is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender. From the findings it was recommended among others that there is need for Government to provide in-service training, workshops, seminars and conferences as this will enable secondary school science teachers grow with new knowledge that will help and enable them to manage disadvantage condition science students to bring about good academic performance for national development in areas of science. From the recommendations, conclusions were made.

Key words: Disadvantaged group, Disadvantage condition and Academic Performance

Disadvantaged group means persons denied by mainstream society access to resources and tools that are useful for their survival in a way that disadvantage them, or individuals who have been subjected to prejudice or cultural bias because of their identities as

members of groups or categories of persons without regard to their individual qualities, and includes enterprises in which a majority of the members or shareholders are youth, women, persons with disability categories. Martin et. al. (2016) and Obikezie et. al. (2023) averred that disadvantaged group of people is vulnerable situations or persons at risk of poverty, social exclusion or discrimination in its multiple dimensions which can occur in both advantaged and disadvantaged condition. As a course of this study disadvantaged condition was focus.

Disadvantage condition on its own is an unfavourable, inferior or prejudicial condition. Švejdová et. al. (2015) asserted that disadvantage condition is lack of basic resources or conditions such as standard housing, medical and educational facilities, and civil rights believed to be necessary for an equal position in society. The author further opined that what make a place or person to be or classified as disadvantaged conditions includes if the place or individual backgrounds are socially or culturally deprived to such a degree that without supplemental facilities and services they cannot profit in the regular school program especially in science oriented subjects to the same extent as individual living in city with normal backgrounds. Kaleja (2015) believed that such traits are capable of affecting students academics performance in senior secondary school science.

Rijlaarsdam (2014) viewed senior secondary school academic performance as degree of knowledge and skills exhibited by senior secondary school students in a subject designed by test scores assigned by the teacher. The authors stated that science academic performance is usually measured by tests scores and expressed in a grade or

units based on students' performance in the subject which can only be obtained maximally by the state of the students. Bhatia (2013) opined that students in disadvantage condition can perform well or may not perform well in science subjects in senior secondary school.

Robertson (2011) maintained that there is a low negative correlation between disadvantaged condition students and their academic performance and no significant difference in correlation between disadvantaged condition students and their academic performance in early child education in Northern Europe. The author further asserted that there is no significant correlation between disadvantage condition students and student academic performance in that region. Meanwhile Wodtke et. al. (2012) reported a moderate correlation between disadvantage condition and students' academic performance in Malta using the Tennessee self-concept scale (TSCS). Wodtke et.al. further observed a significant different in correlation between disadvantage condition and students' academic performance as moderated by gender in favour of male students in Malta using Tennessee cognitive development scale (TCDS). Okumus (2021) supported Wodtke et. al. observation by reporting that there is moderate correlation between disadvantage condition and students' academic performance among high students in biology subject but there was no significant difference in correlation even as when moderated with gender.

A large body of literature has also reported a correlation between disadvantage condition and students' academic performance which seems to be high in girls' students than their boys' counterpart (Machin

2006; Robertson 2011; Kilcan & Simsek 2021; Obikezie et. al. 2023; Svejdova 2015). Another large of literature has also reported a correlation between disadvantage condition and academic performance of students which is high on male students than their female counterpart (Bhahia, 2013; Kazu, 2019; Kesici 2019; Kahraman & Kahraman 2017; Rijlaarsdam, 2014).

From the foregoing, it appears the question of whether correlation exists or does not exist between disadvantage condition and academic performance of students has not been concisely answered because both the theoretical and empirical studies reviewed in this study have produced diverse and contradictory results. Also the issue of gender difference in advantage condition and academic performance has not been resolved and therefore subject to further investigation especially in Africa because all the works reviewed were works outside Africa. Thus this study focused on disadvantaged condition as a correlate to academic performance of senior secondary school students in science in Enugu North Local Government Area of Enugu State.

Purpose of the Study

This study investigated on disadvantaged condition as a correlate to academic performance of senior secondary school students in science. The study specifically determined;

1. the correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area.
2. the correlation between disadvantaged condition and

academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area.

Research Questions.

1. What is the correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area?
2. What is the correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area?

Hypotheses

The study tested the following null hypotheses at 0.05 level of significance:

1. There is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area.
2. There is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area.

Method

The design of the study was correlation survey. Correlation design was used to investigate relationship between two variables without the researchers' controlling or manipulating any of them. The area of the study was Enugu North Local Government Area. The population of the study was all the

5000 senior secondary school students in the government co-education government schools in the local government. The sample size of the study was made up of 909 senior secondary school students in co-education government schools (400 males, 509 females). The sample was drawn using standard Yamane 1967 which stated that a population of 5000 should have a sample size of 909 at + or - 3 %.

Instrument

Two instruments were used for the study; Disadvantaged Condition Inventory (DCI) and Averaged Termly Score of Senior Science Secondary Students Performance (ATSSSSSP). Disadvantaged Condition Inventory (DCI) was adapted from Rijlaarsdam (2014) Social Disadvantage and Child Emotional and Behavioural Problems. The instrument was designed with 20 items regarding students' use of different disadvantage conditions. Scale questions, where the scores range from 1 ("strongly disagree") to 4 ("strongly agree") was used. To ensure the reliability of 20 adapted items of DCI, the instrument was retested using 25 students in Awka South Local Government which is outside the area of study, a coefficient of .85 was obtained using Cronbach alpha indicating that the instrument was reliable.

The second instrument named Averaged Termly Score of Senior Science Secondary Students Performance (ATSSSSSP) was the sampled students average termly scores in secondary school science subjects done in Enugu North Local Government. These scores were used to correlate the students disadvantage condition responses. Disadvantaged Condition Inventory (DCI) was validated by three expects, all from Department of Education

Foundations Psychology option Nnamdi Azikiwe University Awka. Pearson product moment correlation was used to answer research questions and to test the significant relationship at .05.

Ranges of scores	Decision
±0.80 – ± 1.00	High positive or negative correlation
±0.31 – ± 0.79	Moderate positive or negative correlation
±0.00 – ± 0.30	Low positive or negative correlation

Result

The result of this study was presented in line with the research questions and the hypotheses as follows.

Research Questions 1:

What is the correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area?

Table 1: Pearson Correlation Coefficient for the Correlation Between Disadvantaged Condition and Academic Performance of Senior Secondary School Students in Science in Enugu North Local Government Area

Variables	N	r	R^2	Magnitude & Direction	Sig	Decision
DCI ATSSSSSP	909	0.32	0.10	moderate positive relationship	0.00	Significant

Key: R^2 = coefficient of determination

Table 1 reveals correlation coefficients for correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local

Government Area as 0.32. This means there was a moderate positive correlation between disadvantaged condition and academic performance of senior secondary school students in science.

The coefficient of determination (0.10) also known as the correlation value means that 10% of disadvantage condition students accounted for the variation in the academic performance of senior secondary school students in science. This is an indication that 90% of variation in academic performance of senior secondary school students in science is attributed to other factors other than unfavourable, inferior or prejudicial condition in disadvantage condition.

Research Questions 2: What is the correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area?

Table 2: Pearson Correlation Coefficient of the Correlation Between Disadvantaged Condition and Academic Performance of Senior Secondary School Students in Science as Moderated by Gender in Enugu North Local Government Area

Variables	N	r	R^2	Magnitude & Direction	Sig	Decision
DCI ATSSSSSP	909	0.51	0.21	Low Positive relationship	0.282[c]	Not Significant

Key: R^2 = coefficient of determination

Table 2 shows correlation coefficients of the correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender

in Enugu North Local Government Area as 0.51. This means there was a low positive correlation between male and female senior science secondary school students' unfavourable, inferior or prejudicial condition in disadvantage condition and their academic performance. The coefficient of determination (0.21) also known as the correlation value means that 21% of male and female senior science secondary school students' unfavourable, inferior or prejudicial condition in disadvantage condition accounted for the variation in their academic performance. This is an indication that 79% variation in male and female senior science secondary school students' unfavourable, inferior or prejudicial condition in disadvantage condition is attributed to other factors other than the students' academic performance.

Hypotheses

Ho_1: There is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area.

Table 1 revealed the Pearson correlation coefficient for the correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area. A moderate positive correlation was found r (1420) =0.32, p=0.00<0.05) indicating a significant relationship between the two variables. The null hypothesis which stated that there is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area was therefore rejected. The inference drawn was that there is significant difference in correlation between disadvantaged condition and academic

performance of senior secondary school students in science in Enugu North Local Government Area.

Ho_2: There is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area.

Table 2 revealed the Pearson correlation coefficient for the correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area. A low positive correlation was found r (1420) = 0.51, p=0.00>0.05) indicating a no significant relationship between the two variables when moderated with gender. The null hypothesis which stated that there is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender in Enugu North Local Government Area was therefore not rejected. The inference drawn was that there is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender.

Discussion of Findings

The finding revealed a moderate positive correlation between disadvantaged condition and academic performance of senior secondary school students in science. Hence, there is significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science in Enugu North Local Government Area. The finding of this study does not support the

finding of Robertson (2011) who maintained that there is a low negative correlation between disadvantaged condition students and their academic performance. But the finding is in consonance with Wodtke et. al. (2012) who reported a moderate correlation between disadvantage condition and students' academic performance in Malta using the Tennessee self-concept scale (TSCS) and that of Okumus (2021) who maintained that there is moderate correlation between disadvantage condition and students' academic performance among high students in biology subject. More so, the finding is not in line with Robertson (2011) who asserted that there is no significant correlation between disadvantage condition students and student academic performance in that region. By virtue of these findings, this research has joined the school of thought that relates significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science.

The result revealed a low positive correlation between male and female senior science secondary school students' disadvantage condition and their academic performance. Hence, there is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender. The finding is not in line researchers who sided either male or female students in the correlation between disadvantage condition students and students' academic performance in different fields (Machin 2006; Robertson 2011; Kilcan & Simsek 2021; Svejdova 2015; Bhahia, 2013; Kazu, 2019; Kesici 2019; Kahraman & Kahraman 2017; Obikezie et. al. 2023; Rijlaarsdam, 2014).

The finding is also not in consonance with Wodtke et.al. (2012) who observed a significant different in correlation between disadvantage condition and students' academic performance as moderated by gender in favour of male students in Malta using Tennessee cognitive development scale (TCDS) but the result is support of Okumus (2021) who observed a no significant difference in correlation even as when moderated with gender. By virtue of the finding, this research has joined the school of thought that relates no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated with gender.

Recommendations

Based on the findings of the study, and the conclusion drawn, the following recommendations are made:

1. Secondary school science teachers should endeavour to create conducive social learning environment and stimulating atmosphere for all the classes to take care of disadvantaged condition in schools irrespective of school type and gender.
2. Secondary school science teachers should make science students to believe in themselves not mind what have labeled any of them disadvantaged student, this can make each individual science students put aside what so ever that may hinder his/her academic performance in science subjects.
3. There is need for Government to provide in-service training, workshops, seminars and conferences as this will enable secondary school science teachers grow with new knowledge that will help and enable them to manage disadvantage condition science students to bring about good academic performance for national development in areas of science.

Conclusion

This study concluded a moderate positive correlation between disadvantaged condition and academic performance of senior secondary school students in science. Hence, there is significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science. Finally, this study also concluded a low positive correlation between male and female senior science secondary school students' disadvantage condition and their academic performance. Hence, there is no significant difference in correlation between disadvantaged condition and academic performance of senior secondary school students in science as moderated by gender.

References

Bhatia, Sugan. (2013). *Literacy and Adult Education in Independent India*. New Delhi. India: Sonali Publications.

Kahraman, F. & Kahraman, A. B. (2017). Dezavantajlılığın çocuk halleri: dünya'da ve türkiye'de dezavantajlı gruplarda yer alan çocukların durumu; child state of disadvantageousness: the state of the children in disadvantaged status in the world and Turkey. *Gümüşhane Üniversitesi Sosyal Bilimler Enstitüsü Elektronik Dergisi Gümüşhane University Graduate School of Social Sciences E-Journal*, 8 (20), 255-268.

Kaleja, M. (2015). *Etnografie školy jako edukační realita současnosti.* Ethnography publishers India

Kazu, İ. Y. (2019). Sosyo-ekonomik açıdan dezavantajlı kişilerin eğitimleri sırasında karşılaştıkları sorunlar: the problems encountered by socio-economically disadvantaged people during their education. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi Dicle University Ziya Gökalp Education Faculty Journal*, 34 (2), 38-47.

Kesici, A. G. (2019). *The mentally-disabled children who continue inclusive education within the framework of individualized education and history courses.* [Unpublished Master's Thesis. Marmara University Graduate School of Educational Sciences, İstanbul].

Kılcan, B. & Şimşek, Ü. (2021). Investigation of social studies curriculum in regards to migrant, refugee, asylum-seekers concepts. *Participatory Educational Research, 8 (1), 395-408.*

Machin, S. (2006). Social Disadvantage and Education Experiences. http://www.oecd.org/social/soc/36165298.pdf

Martin, S., Dusan, J., & Katerina, T. (2016). Social disadvantage challenge for educational science and educators. *Social Journal of Education*, 6(7), 1-13.

Obikezie, M. C., Chikendu, R. E., Ozumba, C. C., Akinbode, F. F. (2023). Mental health issues as a correlate to university students' achievement in chemistry. *Journal of Applied Medical Science*, 2 (5). 1-6.

Okumus, O. (2021). History education for disadvantaged group in theory and in

practice. *International Online Journal of Education and Teaching (IOJTET)*, 8(2), 1291-1311

Rijlaarsdam, J. (2014). Social Disadvantage and Child Emotional and Behavioural Problems:At HOME in the Netherlands. http://www.generationr.nl/fileadmin/user_upload/Documenten/PDF/Profefschriften/140122_Rijlaarsdam-Jolien-Social-Disadvantage-and-Child-Emotional-and-Behavioural-Problems.pdf

Robertson, R.P. (2011). What is Community Disadvantage? Understanding the Issues Overcoming the Problem. https://aifs.gov.au/cfca/sites/default/files/publication-documents/rs2.pdf

Švejdová, Z. (2015). In the Czech Republic there are more and more borrowers who have multiple executions at atime Český rozhlas. http://www.rozhlas.cz/zpravy/domaciekonomika/_zprava/v-cesku-pribyva-dluzniku-kteri-maji-viceexekuci-najednou--1541121.

Wodtke, G.T., Elwert, F., & Harding, D.J. (2012). Poor families, poor neighbourhoods: how family poverty intensifies the impact of concentrated disadvantage.university of Michigan. http://www.psc.isr.umich.edu/pubs/pdf/rr12-776.pdf