



Influence of nature and nurture and academic performances of primary school pupils in Katsina metropolis of Katsina State, Nigeria

Rabi Abdullahi Machika

Ministry of Education Katsina, Katsina State, Nigeria

Abstract

This study investigated the influence of nature and nurture and academic performance of primary schools pupils' in Katsina metropolis, Katsina State, Nigeria. Two research objectives, research questions and hypotheses were raised to guide the study. Descriptive survey research design was used to conduct the study. A sample of two hundred (200) pupils were selected for this study using simple random sampling technique as guided by the research advisor. A structure questionnaire was used to collect information for the study. Reliability co-efficient of 0.74 of the instrument was obtained which was considered to be reliable for data collection. The hypotheses were tested using Mean Score and Standard Deviation. Based on the findings, researcher recommended that teachers ought to be aware of the importance of heredity and environment clearly therefore he/she should make an adequate plan for all categories of learners in his care. Also, teacher should realize that as the nature of children differs, so also their environment factors, teachers should plan their instructional materials in such way that will cater for the variations of learner's.

Keywords: nature, nurture, academic performances, primary school pupils, biological and genetic factors

Introduction

Two major factors account for characteristic and differences. These are heredity and environment both of which are otherwise referred to as nature and nurture respectively. Heredity and environment are indispensable to human development and they are jointly responsible for the inter-personal variations in human personalities. Nature is the transmission of genetic traits or characteristics from parents to children or offspring. It is the biological transfer of resemblance from one generation to another. Hereditary characteristics manifest in traits such as height, color of skin, sex, intellect and other relatively permanent characteristics of genetic origin (Saka 2020, in Fakayode 2004).

The term Nurture is used to describe all other factors outside heredity that influence human personality thus environment can be viewed in terms of human and non-human factors. Environment could be physical or psychological as it includes the objects in one's surrounding and the manner of people with whom one interacts and also the type of interactions that exist between the individual and other people or objects. For example the classroom environment consists of the physical settings like the sitting arrangement, ventilation, and the teaching-learning materials and of course the kind of social relationship among the learners on one hand and between them and their teachers on the other. Also parts of the school environment are the school plants, the pressures and demands on the teachers as well as the learners and the influence of the entire community on the school.

One of the areas concerned by researcher is home environment. Home environment is one of the nurture factors which was viewed differently by different scholars. According to Muola (2010) [7] he opined that home environment hinders or supports children's overall development. Parents' attitudes play a dominant role and where it is supportive enhances children's performances and has positive impacts on child's development. In a study

conducted by Clark, Goyder and Bissel (2007) it was established that positive domestic environment is the prominent indicator of students' success in their academics. They further added that teaching learning process carried out at school is incomplete without the support of home environment. In this regard the study of Shah, Atta, Qureshi, and Shah, (2012) emphasized that the awareness of parents' role in the education of their children is fundamental.

According to Morgan et al (2009), academic skills are correlated with the home environment. Low literacy environments like rural areas where parents do not understand the value of schooling negatively affect a child's pre-academic skills. According to Aikens and Barbarin (2008), children's initial reading competence is correlated with home literacy environment, a number of books owned, and parents' distress. However, families from low socio-economic status do not have such resources or time availability to provide children with academic support. In a view of Coley (2002) on nationwide study of American kindergarten children 36% of parents in lowest income quintile read to their children on daily basis, compared with 62% of parents from the highest income quintile.

According to Aikens and Barbarin (2008), children from low socio-economic status environment acquire language skills more slowly, exhibit delayed letter cognition and phonological awareness, and are at risk for reading difficulties. Coley (2002), views that, children with higher socioeconomic status background were more likely to be proficient on tasks of addition, subtraction, ordinal sequencing, and math word problems than children from lower socioeconomic background. Also students from lower class are less likely to perform well in school than students from higher or middle class. Children from lower socioeconomic background tend to display lower achievement and motivation.

In a view of Ajila and Oluntola (2000), the state of home affect individual since the parents are the first socializing agents in an individual life, this is because the family background and context of a child affect his reaction to life situations and his level of performance. Although the school is responsible for the experience that make up the life of individual's life during school period yet parents and individual's experiences at home play tremendous roles in building personality of the child and making child what he is.

Conclusively, children with involved and well caring father and who are cordially related to him have better educational outcome. A number of studies suggest that fathers who are involved in nurturing and are playful with their infants have children with higher IQs, as well as better linguistic and cognitive capacities.

Another variable considered by researcher is biological and genetic factors. Poor academic performance (PAP) is associated with many factors; among them is biological factors, biological factors are of critical importance as it determined the potential for fulfilling inherited programs of cognition of the outer world and the latter determine the stable functioning of the development programs themselves. Hereditary and environmental impacts remains open up to now. Morphological studies have shown that gifted people and geniuses probably have genetically determined peculiarities in their brain structure (Adrianov, 1993) [3]. Klug *et al.*, (2006) defined genetics as the biology of hereditary and variation. Hereditary or inheritance focuses on the transmission of characteristics from one generation to another, hence similarities while variation dwells on the causes of differences among individuals. Genetics, therefore attempts to explain the mechanism of two constants that are found in the universe – similarities and differences. Genetics has been widely recognized as the conceptual foundation for the understanding of Biology itself (Deadman and Kelly, 1978).

Another area of concern by researcher is academic performance. Academic performance is the level of actual accomplishment or proficiency one has achieved in an academic area as opposed to one's potential in the educational goals measured by examination. Academic achievement prepares students for future career and also allows them to enter competitive field. It can also affect students' opportunities for further education and future occupation. (Saka and Ibrahim 2022, in Nwadinigwe and Azuka-Obieke 2012) [1, 8] stated that "poor academic performance is a performance that is adjudged by the examiner as falling below an expected standard". Academic performance of primary school children is influenced by interplay of a variety of nature and nurture factors. Nurture are environmental factors such as parenting style, socio-economic status, and educational opportunities that a child is exposed to as he/she grows up.

Nature on the other hand are genetic and biological factors that a child is born with. Nurture and nature play a significant role in defining student's performance. Factors that relate to nurture such as child's home environment, parenting style and educational opportunities can impact on cognitive development of a child which determined the level of his/her academic success. Nature also influenced academic performance as child genetic factors affect his/her cognitive and learning ability as well as learning potential. For instance, a child may have a genetic predisposition to

excel in certain such as primary science, mathematics etc, while others may have genetic factors that make learning more difficult for them. Specifically, a supportive home environment with positive reinforcement and learning opportunities can facilitate a child's development with the necessary skill to succeed academically. Parenting style can influence child's academic performances by setting clear expectations and boundaries as well as providing emotional support and encouragement to child which will positively impact on his/her learning outcomes. Moreover, scholars identified many factors responsible for students' performance; the factors range from home, school and peers oriented.

Mangle (2007) studied learning from multi- dimensional perspective and found students' aptitude, interest, home environment, peer's interactions and nature of learning materials to have significant influences on students learning outcome. In the same way, Parveen (2007) [10], Codjoe (2007) [4] and Muola (2010) [7] concluded that home environment is the most influential factor among all factors responsible for students' learning. This is so because, it is the first institution where a child starts learning virtues of his society. Nyarko and Vorgelegt, (2007), states that parental involvement in learning has emotional and intellectual benefits for children. They observe however that because supportive and strong families are significant for school success, teachers confront increasing challenges as many children experience severe family disruption and upheaval. Although it is acknowledged that families are perhaps the most substantial influence on children's school success, it is not always clear which family influences are the most important. The trend in the academic performance of primary school pupils in Nigeria should be a major source of concern to all stakeholders in the education sector most especially Katsina metropolis in which this research work focus on. This is so because of the great importance of primary education has on the national development of any nation.

Theoretical framework

Sternberg Family Model

The Sternberg Family model was found in 1996. In a set of investigation Lawrence Sternberg (1996), proposes that to understand family influences, it is important to disentangle three different aspects of parenting. These include:

- Parenting style, which provides the emotional context in which parents- child interaction occurs.
- The goals that parents establish for their children.
- The practices adopted by parents to help children attain those goals.

It has been shown, for example, that a parenting style, as authoritative, is related to positive academic motivation and successful academic achievement (Darling and Sternberg, 1993). Such a style creates a context in which parents encourage children's independence and individuality, provide opportunity for the children to be involved in family decision making, and expect higher standards for their children.

Research objectives

The main purpose of this study was to investigate the;

1. Relationship between home environment and pupil academic performance.

- Relationship between biological factors and pupil academic performance.

Research questions

Based on the above stated objectives above, the following research questions were answered;

- What are the relationship between home environment and pupils’ academic performance?
- What are the relationship between biological factors and pupils’ academic performance?

Research hypotheses

The following null hypotheses are formulated and tested at 0.05 level of significance.

Ho1: There is no significant relationship between home environment and pupils’ academic performance.

Ho2: There is no significant relationship between biological factors and pupils’ academic performance.

Methodology

Research design

This study adopted descriptive survey research approach as it is suitable in the collection of data about people’s opinions and views on predictors of truancy. It entails the collection and use of data systematically from a given population to describe certain characteristics features of the population Olayiwola (2007) [9]. This design also accommodates generalization of findings of the study upon the target population from which only a representative or sample was actually studied. The study relied on primary data generated from two selected primary schools in Katsina State.

Instrumentations

Structured questionnaire was administered to 200 pupils in the 2 selected primary schools from katsina metropolis of Katsina State. The pupils’ cut across both gender. The questionnaire was adopted from Khan, Mehnaz, and Imad (2019) [5].

Data analysis

Data was analysis and Interpreted based on the Mean scores of the responses which are;

Mean Score from 1.00 to 1.50 will be equal to Strongly Disagree

Mean Score from 1.51 to 2.50 will be equal to Disagree

Mean Score from 2.51 to 3.50 will be equal to Undecided

Mean Score from 3.51 to 4.50 will be equal to Agree

Mean Score from 4.51 to 5.00 will be equal to Strongly Agree

Data analysis

Table 1: Family interactions at home

Statements	Mean Score	Std Deviation
Mutual care and respect of family members	4.31	.982
Following the rules home	4.10	1.31
Understanding of family members views	4.01	1.26
Home atmosphere	4.23	0.96
Cumulative mean scores	4.20	1.66

Survey, 2023.

Based on the analysis of this study, it is shown that mutual care and respect of family members have the highest mean score 4.31 majority of the respondents agreed that they follow rules and regulation prescribed at home and family members and mutual understanding have mean scores 4.10, 4.01 and 4.23 while the aggregate mean score about the overall family interactions was 4.20. These descriptions illustrated that mutual understanding of family members is not reflective they have divided views as shown by the standard deviation 1.26. In nutshell majority of the respondents agreed that they have low understanding of each other but still all family members are satisfied from one another. They further noted that there were positive and congenial interactions among family members and that younger (students) are provided opportunities to have say in family matters.

Table 2: Physical facilities at home for students

Statements	Mean Score	Std Deviation
Balance diet and nourishment	3.83	3.34
Study Room/separate place for study	1.43	1.67
Stationary and Allied Books/ study aids	3.91	1.47
Tuition and guidance facilities	3.85	2.36
Cumulative mean scores	3.86	1.31

Survey, 2023.

The status of physical facilities available for pupils’ at home is illustrated in the above mentioned table, where study room/separate space for study is 1.43 mean scores which illustrates that majority. Majority of the pupils’ have all other facilities included, balance diet, stationary and allied books/study aids for study, and tuition and guidance facilities students have at their home. The cumulative mean scores (3.86) shows that majority of the respondents were agreed and were found satisfied from the physical facilities at their home.

Table 3: Students’ self-esteem from the perspectives of their family

Statements	Mean Score	Std Deviation
Balance diet and nourishment	3.83	3.34
Study Room/separate place for study	1.43	1.67
Stationary and Allied Books/ study aids	3.91	1.47
Tuition and guidance facilities	3.85	2.36
Cumulative mean scores	3.86	1.31

Survey, 2023.

The table above shows that proud on pupils’ family has a mean score of 4.00, participation in family discussions has 2.64 which means undecided, having full financial support for study from home has 4.04 which means agreed. And cumulative mean scores has a mean score of 3.57. This implies that pupils’ self-esteem includes participation and say in family matters, financial and logistic support and pride to be the part of his/her family. The above analysis illustrates that pupils’ are not allowed to participate in family discussions and they are supported financially, majority of the pupils’ were found satisfied from their home environment

Discussion of finding.

This current study investigated the influence of nature and nurture and academic performance of primary school pupils in katsina metropolis. After finding the result revealed that

positive and significant correlation exists between parents-child interaction and students' academic performance. This result further shows that the level of academic performance a child could get depends on the interaction he/she received from his/her parents. This finding also supported the work Donkor (2010) who posited that involving parents leads to increased academic achievements of students at all educational and economic levels. The study was also supported by the finding of Sheila and Robert (2006) [11] who posited that whether children are in the same or in different classrooms, genetics play at least a modest role in mediating their perceptions and academic performance.

He further explained that despite the relatively modest average heritability of children's perceptions of the classroom environment, results emphasize the importance of genetics, the researcher was the opinion that even if the identical twins were in the same or in different classrooms, they consistently viewed their school surroundings more similarly than did fraternal twins. He said this could be partly attributable to genetically influenced dispositional characteristics that filter the way in which some children view their unique realities. Result of this study also affirmed that family interactions are important at home and take place frequently, which were found significantly related to students' academic achievement. The significant correlation scores dismissed the Ho2 showing no significant correlation between family interactions and students' academic achievement, and an alternate H1 that there is significant correlation between the two variables. Physical facilities at home were also found a significant variable in students' academic achievement. The results proved the correlation between the variables. Therefore, the Ho3 was rejected with an alternate H2 was formulated. Female students' showed higher percentage than the male students'. The outstanding performance percentage of students was very low and the percentage of satisfactory performances was significant. Overall the home environment of students was satisfactory but the academic achievement was not outstanding. Majority of the students were lacking study room facility, they were not allowed to take participation in domestic issues but they showed satisfaction from the physical facilities, self-esteem and family interactions.

Conclusion

From the above analysis, it can be concluded that significant success in life, particularly in learning, is a function of both heredity and environment. For example potentially gifted individual may not be able to manifest his intellectual superiority under an inhibiting environmental influence. Based on the above analysis, it is very obvious that both heredity factors and environmental factors play an important role in intellectual development of individuals. While heredity set an upper limits to intellectual development, environment determines this limit; the degree which the individual approaches.

Recommendations

Based on the findings of this study, the following recommendations were provided:

1. Parents should always find quality time to interact with their children because having good interaction with them will fosters their relationship and will also improve their academic achievement.

2. Researcher also recommended that students should be provide a serene home environment for studies which could help to promote student's overall development. The most suitable mean is to give proper time to children, and create an educative environment at home.
3. The teachers ought to aware of the important of heredity and environment clearly therefore he/she should make an adequate plan for all categories of learners in his care. Also, teacher should realize that as the nature of children differs, so also their environment factors, teachers should plan their instructional procedure in such way that will cater for the variations in learner's heredity and environmental background to ensure that every child is considered and taking care of in all ramification of instructional planning process.

References

1. Abdulganiyu S, Ibrahim A. Impact of Peer Pressure and Gender as Predictors of Social Media Usage and Academic Performance among School-going Adolescents in Wukari Educational Zone, Nigeria. *Asian Journal of Sociological Research*,2022;7(1):43-49. Article no.AJSR.1022.
2. Abdulganiyu Saka. Predictive Influence of Emotional Intelligent and Peer Pressure as Determinants of Social Media Usage and Academic Performance among School-Going Adolescents in Wukari Educational Zone of Taraba State, Nigeria: *Asian Basic and Applied Research Journal*,2022;5(2):49-56. Article no.ABAARJ.826.
3. Adrianov OS. Brain Architecture and Personal Individuality, *Usp. Fiziol. Nauk*,1993;24(3):25.
4. Codjoe HM. The Importance of Home Environment and Parental Encouragement in the Academic Achievement of African Canadian Youth. *Canadian Journal of Education*, 2007.
5. Khan FN, Begum M, Imad M. Relationship between Students' Home Environment and their Academic Achievement at Secondary School Level. *Pakistan Journal of Distance & Online Learning*,2019;2:223-234.
6. Matilda N. Nature versus Nurture: A master's thesis submitted to the Graduate Faculty in Liberal Studies in partial fulfillment of the requirements for the degree of Master of Arts, The City University of New York, 2018.
7. Muola J. A Study of the Relationship between Academic Achievement Motivation and Home Environment Among standard eight pupils. *Journals of educational Research and Reviews*,2010;5(5):213-217.
8. Nwadinigwe IP, Azuka Obieke U. The Impact of Emotional Intelligence on Academic Achievement of Senior Secondary School Students in Lagos, Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies*,2012;3(4):395-401.
9. Olayiwola AO. *Procedure in Educational Research: kaduna Kingo Nigeria Limited*, 2007.
10. Parveen A. Effects of Home Enviornment on Personality and Academic Achievements of Students of Grade 12 in Rawalpindi Division. Research thesis, National University of Modren Languages, Islamabad, 2007, 32-41.

11. Sheila OW, Robert P. Nature, Nurture, and Perceptions of the Classroom Environment as They Relate to Teacher-Assessed Academic Achievement: A twin study of nine year-olds. *Educational Psychology*,2006;26(4):541–561.
12. Sunday AF, Adekale AA. *Child Developmental Psychology*, Bade Printing and Computer Services, P.O. Box 341, Ikirun Osun State, 2004.