

Parental disciplinary practices and students' needs satisfaction as predictors of students' academic achievement in Mathematics in Ikom Education Zone of Cross River State, Nigeria

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Abstract

This study investigated parental disciplinary practices and students' needs satisfaction as predictors of students' academic achievement in Mathematics in Ikom Education Zone of Cross River, Nigeria. Two hypotheses were formulated to direct the study and literature was reviewed on the variables under study. Ex-post facto research design was adopted for the study. A total sample of 740 students out of 7,346 SS2 students were selected using stratified and simple random sampling procedures. A questionnaire titled Parental disciplinary practices and Students' Needs Satisfaction" (PDPSNS), and Mathematics achievement test were the main instruments used for data collection. The reliability estimate of the instrument was established through Cronbach Alpha, and reliability estimate of .70 and .74 was established for the PDPSNS; while for students' achievement test in Mathematics, the reliability was established through Kuder Richardson formula K-R20 which gave .72. Linear Regression was adopted to test the two hypotheses at .05 level of significance. The result of the analysis revealed that parental disciplinary practices and students' needs satisfaction significantly predict students' academic achievement in Mathematics. Based on this finding, it was recommended, among others, that continuous parental disciplinary practices and students' needs satisfaction should be encouraged to enhance students' academic achievement in Mathematics.

Keywords: Parental, disciplinary, practices, needs, satisfaction, academic, achievement

Introduction

Mathematics is one of the core and compulsory subjects in the Junior and Senior Secondary School Curriculum which reflects the recognition of the vital role it plays

in contemporary society. Students' inability to acquire this required knowledge is one of the major problems in studying secondary school Mathematics. Students seem to lack effective method of problem solving in Mathematics. This has resulted to students showing negative attitude, loss of interest and lack of attention in class during Mathematics instruction; and these may be as a result of their home background or lack of parental care. Asikhia (2010) stated that academic performance of the child could be traced to the home he comes from. Farooq, Chaudhry and Shafiq (2011) affirmed that the parental care practices are the most powerful factors determining the child's academic performance in schools.

Family is a foundation for academic achievements of the child. It is the primary cell of society where the child's upbringing must begin since his birth, still in the cradle. Failure of the parents to meet the specific needs of a child can have wide-ranging and long-lasting negative effects on academic performance of the child (Epstein, 2001). This is because parents in the home are children's first teacher. As a child moves from infant to toddler and then to a pre-schooler, he learns how to speak, listen, write and read, which later develops the child to achieve academically. The home is very germane and crucial to a child's well-being and development in later life. Homby and Laelee (2009) stated that greater parental involvement at early stage in children's learning, positively affects the child's school performance in Mathematics.

The role that parents play in the upbringing of a child cannot be over emphasized. Children look upto their parents for guidance, discipline, protection and motivation to live a great life. One of the best ways to achieve wholesome qualities of education is the partnership of parents and teachers in injecting valuable skills, conduct, and knowledge to the students (Gonzalez-DeHass, Willems & Holbein, 2005). The family and its structure play a great role in children's academic performance. If parents pay attention to their children, they make more scholastic achievements than those who are ignored. The characteristics portrayed by parents in the education of their children is important in ensuring that the students focus on their studies and are able to have good academic performance in Mathematics. According to Amukowa and Karue (2013), among the key causes of poor performance in education, characteristics such as parental involvement, discipline, counselling service, students' needs satisfaction and the family background have a major impact on student's academic achievement. Akomolafe (2011) observed that it is the nature of a family that overwhelmingly affects their members' thoughts, feelings and actions. Hence, relationships between family influences and students' academic achievement need to be taken into account in order to enhance their performance.

The parents' roles are of maximum importance for personality development of the children. Basic traditional roles of being a parent are: nurture and educate children,

discipline them, manage home and financially support family. Modern roles brought an active participation of fathers in children's care. The education of the child starts from home before the school. The home sets the pace for the acquisition of moral values to resist deviant behaviour that affects students' academic achievement in Mathematics. Yet in some homes, parent-child relationship is a source of distress, trauma and unbelievably tragic realities. This has caused serious concern globally. The future of the child is affected by parents' rearing practices such as parents' disciplinary practice, students' needs satisfaction and counselling services (Nam & Park, 2009). Without proper parental care, students are easily susceptible to deviant behaviours, crime and prostitution, with their attendant problems which may affect their academic achievement in Mathematics. Parental care takes many forms such as good parenting at home, disciplinary practices, provision of basic necessities, positive behaviour moulding, instilling positive social values and good citizenry and above all, enhancing educational aspirations such as helping the child in reading, supervising their homework, offering coaching and presenting learning activities outside schools (Eshetu, 2014).

The parental care practice plays a vital role on the academic performance of children at all levels of education in the school system. Morgan, Farkas, Hillemeier and Maczuga (2009) stated that children from low socio economic status households and communities develop academic skills more slowly compared to their counterparts from higher socio-economic status families. The low socio economic status (economically struggling families) deprives children of what is necessary to support their growth and welfare. Ajila and Olutola (2007) state that the home affects the individual since the parents are the first socializing agents. This is because the family background and the context of the child affect his or her reaction to the real life situation and his level of performance.

Parents' disciplinary practices refer to the practice of training children to obey rules or a code of behaviour, using punishment to correct disobedience and reinforcement to encourage good behaviour. According to Were (2006), discipline exposes children to ways of handling everyday challenges and equips them with the personal strength needed to meet demands imposed on them by the school and later in adult responsibility. Parents' disciplinary practice involves discipline through correction, punishment or reinforcement, depending on the attitude or behaviour exhibited. Parents in their disciplinary practices are expected to mould students' character to conform to societal ideals. This enhances their academic achievement in Mathematics. You and Nguyen (2011) reported that parental disciplinary practice influence students' academic achievement. Carbonel, Banggawan and Agbisit (2013) in their studies on parental role and students' academic achievement, found that disciplinary practice has significant effect on academic achievement of students. Similarly, Simba, Agak and

Kabuka (2016) examined the impact of discipline on academic performance of students in public schools in Muhoroni Sub-County, Kenya. The study adopted descriptive survey and correlational research design. A sample of 817 students was selected from 34 schools via stratified random sampling and simple random sampling techniques. The result of the analysis, using independent t-test, shows that there is a significant influence of parental disciplinary practice on students' academic achievement in Mathematics. In the same vein, Ntitika (2014) investigated the parental characteristics and students' academic performance in public secondary schools in Isinya District, Kenya and found parental disciplinary practices to have significant influence on students' academic performance in Mathematics.

Students' needs satisfaction refers to meeting a student's basic necessity of food, learning materials, cloths, health care, safe home and protection from abuse or deprivation of any kind. Nam and Park (2009) stated that through satisfying the child's psychological needs like love, warmth, acceptance, learning materials, encouragement and security, the child will develop self-confidence, good personality and acceptable behaviour and these can enhance their academic performance in school. Nyamwange (2012) averred that lack of basic needs is associated with poverty and it has negative effect on students' academic performance in Mathematics. Ogunleye, Omirin and Balogun (2013) examined gender differences and the influence of parenting styles on the academic performance of secondary school students in Ekiti State, Nigeria. They reported that parenting style, in terms of support, discipline, and counselling, significantly influences students' academic performance. In the same vein, Olatoye and Ogunkola (2008) investigated the relative and combined influences of parental involvement and interest in schooling, on science achievement of selected Junior Secondary School students in Ogun State, Nigeria. Twelve secondary schools were selected from the four administrative divisions of the State. A sample of 360 students participated in the study and the instruments used were questionnaire and achievement test. The results of the analysis show that there is a significant relationship between parental needs satisfaction and students' academic achievement in Mathematics. Hasan (2016), in his study on the correlates of parental support and academic achievement of male and female secondary school students of Aligarh Muslim University, Aligarh (U.P.) India, found a positive significant relationship between academic achievements and parental support of secondary school students. Lau, Li and Rao (2011) found that parental needs satisfaction is highly correlated with overall readiness for the school.

Abdullahia (2016) examined the effects of home background factors on students' academic achievement in sciences in Katsina State, Nigeria. A cross-sectional research design was used. A multi-stage sampling technique was used to randomly select 300 students from six secondary schools. The result of findings using Linear regression

shows that parental needs satisfaction significantly influences students' academic achievement in Science subjects. In the same vein, Akomolafe and Adesua (2016) examine peer group and parental support as correlates of the academic performance of Senior Secondary School students in South West Nigeria, and found a positive significant relationship between peer group, and parental support and the academic performance of students.

Research Questions

1. To what extent do parental disciplinary practices predict students' academic achievement in Mathematics?
2. How does students' needs satisfaction predict their academic achievement in Mathematics?

Hypotheses

The following null hypotheses were formulated to guide the study:

Ho1: Parental disciplinary practices do not significantly predict students' academic achievement in Mathematics.

Ho2: Students' needs satisfaction does not significantly predict students' academic achievement in Mathematics.

Methodology

The study area was Ikom Education Zone of Cross River State. The research design used for this study was the ex-post facto design. The population for the study consisted of all the senior secondary school II (SS 2) students in Ikom Education Zone which comprises of Abi, Boki, Etung, Ikom, Obubra and Yakurr Local Government Areas (LGAs). There are ninety-eight (98) public secondary schools and seven thousand three hundred and forty-six (7,346) Senior Secondary school students including male and female students. A multi-stage sampling technique involving stratified and simple random sampling techniques was adopted in selecting 740 students for the study. The schools were stratified based on schools and local government areas. The population was divided into six strata based on Local Government Area. The names of the schools were written on pieces of paper and folded into ball-like shapes. The paper balls were poured into a container and mixed properly. A small boy who did not know what the exercise is meant for was invited to pick one piece of paper at a time, without replacement until the 20 schools were selected out of the total number of paper-balls in the container. The schools whose names appeared on the picked pieces of paper were used for the study. 20% of schools were selected from each Local Government Area. Out of a total of 98 public secondary schools, 20 (20%) schools were randomly selected for the study. From the selected schools in each local government area, 10% of the total number of students was selected using proportional sampling technique giving a total sample of 740 students for the study.

Two instruments were used for data collection, including a questionnaire titled Parental Disciplinary Practices and Students' Needs Satisfaction (PDPSNS) and Mathematics achievement test. The PDPSNS consisted of two sections: A and B. Section A described the bio data of the respondents which include gender while section B was developed on the main variables such as parental disciplinary practices and students' needs satisfaction. The section B consisted of 2 sub-sections; sub-section 1 consisted of items 1-6 eliciting information on parental disciplinary practices while Sub-section 2 consisted of items 7-12 eliciting information on needs satisfaction. The questionnaire was based on four-point scale used in measuring respondents' level of agreement or disagreement. Strongly agree was scored 4-points, Agree was scored 3-points, disagree was scored 2-points and Strongly disagree was scored 1-point. Mathematics achievement test consisted of 50 items constructed by the researchers based on SS 2 syllabus; this was used to test students' ability in Mathematical tasks. Correct answer was scored 1-mark while incorrect answer was scored 0-mark. The instruments (questionnaire and achievement test in Mathematics) were face-validated by two experts in Measurement and Evaluation and two Mathematics educators, both from the University of Calabar. Corrections were pointed out by the experts and adjusted by the researchers and the document was considered valid. The reliability estimate of the questionnaire was established through test-retest reliability which gave a range of .70 - .74 while pupils' Mathematics achievement test was established through Kuder Richardson formula K-R20 which gave .72. The statistical package for social sciences (SPSS) computer programme was used to analyze the data collected. The hypotheses were tested using Simple Linear regression.

Presentation of results

The result of the analysis is presented in the Tables 1 and 2. The hypotheses were tested at .05 level of significance.

H₀₁: Parental disciplinary practices do not significantly predict students' academic achievement in Mathematics.

The independent variable in this hypothesis is parental disciplinary practices while the dependent variable is students' academic achievement in Mathematics. Linear regression tool was used in testing this hypothesis. The result of the analysis is presented in Table 1.

Table 1: Simple linear regression analysis of parental disciplinary practices as predictors of students' academic achievement in Mathematics

Variables	r	r ²	Adj r ²	Std. Error	
Parental disciplinary practices	.295	.086	.086	4.12022	
Source of variations	Sum of Squares	df	Mean Square	F	Sig.
Regression	3,966.467	1	3,966.467	70.324	.000
Residual	41,625.113	738	56.403		
Total	45,591.580	739			

The result of simple regression analysis showed the correlation coefficient of the variable as 0.295, which implied that there is a strong relationship between parental disciplinary practices and students' academic achievement in Mathematics. More so, the result as presented in Table 1 shows that Adj r² is 0.086 which implies that 8.6 % of students' academic achievement in Mathematics in the study area is accounted for and predicted by parental disciplinary practices. This means that the more positive disciplinary practice they received, the better their academic achievement in Mathematics. The table also has an analysis of variance result of F= 70.324, p=.000. This implies that even though the percentage contribution is small, it has a significant influence on students' academic achievement in Mathematics. Hence the null hypothesis is rejected at 0.05 level of significance.

Ho2: Students' needs satisfaction does not significantly predict students' academic achievement in Mathematics.

The independent variable in this hypothesis is students' needs satisfaction while the dependent variable is students' academic achievement in Mathematics. Linear regression tool was used in testing this hypothesis. The result of the analysis is presented in Table 2.

Table 2: Simple linear regression analysis of students' needs satisfaction as a predictor of students' academic achievement in Mathematics

Variables	r	r ²	Adj r ²	Std. Error	
Students' needs satisfaction	.330	.109	.108	4.012011	
Source of variations	Sum of Squares	df	Mean Square	F	Sig.
Regression	4,969.482	1	4,969.482	90.284	.000
Residual	40,622.098	738	55.043		
Total	45,591.580	739			

The result of simple regression analysis showed the correlation coefficient of the variable as 0.330, which implies that there is a strong relationship between students' needs satisfaction and students' academic achievement in Mathematics. More so, the result as presented in Table 2 shows that Adj r^2 is 0.108, which implies that 10.8% of students' academic achievement in Mathematics is accounted for by their needs satisfaction. This means that the more they are satisfied with their needs, the better their academic achievement in Mathematics. The table also shows an analysis of variance result of $F=90.284$, $p=.000$. This implies that even though the percentage contribution is small, it has a significant influence on students' academic achievement in Mathematics. Hence the null hypothesis is rejected at 0.05 level of significance.

Discussion of findings

The result from the first hypothesis revealed that parental disciplinary practice significantly predicts students' academic achievement in Mathematics. The finding is in line with the finding of You and Nguyen (2011) who reported that parental disciplinary practices influenced students' academic achievement. The finding is in agreement with the finding of Carbonel, Banggawan and Agbisit (2013) who, in their studies on parental role and students' academic achievement, found disciplinary practice to have significant effect on academic achievement of students. Similarly, this finding confirms the finding of Simba, Agak and Kabuka (2016) who examined the impact of discipline on academic performance of students in public schools in Muhoroni Sub-County, Kenya; and reported a significant influence of parental disciplinary practice on students' academic achievement in Mathematics.

The result from the second hypothesis revealed that students' needs satisfaction significantly predicts students' academic achievement in Mathematics. The finding agreed with Nam and Park (2009) who stated that through satisfying the child's psychological needs like love, warmth, acceptance, learning materials, encouragement and security, the child will develop self-confidence, good personality and acceptable behaviour and these can enhance their academic performance in schools. The finding is also in line with the finding of Nyamwange (2012) who averred that lack of basic needs is associated with poverty, and it has negative effect on students' academic performance in Mathematics. The finding is also in consonance with the finding of Olatoye and Ogunkola (2008) who investigated the relative and combined influences of parental involvement and interest in schooling, on science achievement of selected Junior Secondary School students in Ogun State, Nigeria, and found a significant relationship between parental-needs satisfaction and students' academic achievement in Mathematics.

Conclusion

Based on the findings of this study, it could be concluded that parental disciplinary practices and students' needs satisfaction become very necessary and essential because they enhance academic performance. Therefore, parental disciplinary practices and students' needs satisfaction are very important factors and should be considered in the teaching/learning process to enhance students' academic performance in Mathematics in Secondary schools,

Recommendations

On the basis of the findings of the study, the following recommendations were made:

- 1) Continuous parental disciplinary practices should be encouraged to enhance students' academic achievement in Mathematics.
- 2) Parents are encouraged not only to make provisions for school needs, but also make available financial and psychological support for their children both at home and in the school. This will enhance their academic achievement in Mathematics.

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