

**INFLUENCE OF PARENTAL AND ENVIRONMENTAL FACTORS ON GIRL-CHILD  
MATHEMATICS ACHIEVEMENT IN BOSSO LOCAL GOVERNMENT OF NIGER  
STATE**

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## **ABSTRACT**

The study examined the influence of parental-related factors and the environment on the mathematic achievement of the girl-child in Bosso LGA, Niger state. Three research questions were raised for this study. Cross sectional survey method of design was adopted for this study. Simple random sampling technique was used to select a sample size of 114 respondents across four (4) co-education secondary schools within the area. Data was collected and statistically analyzed using frequency, percentage and Pearson product correlation coefficient (PPMC) techniques. Findings from the study indicate a significant relationship  $p < 0.05$  the mathematics achievement of the girl-child and their parents influence. Similarly, a significant relationship was observed between the mathematics achievement of the girl-child and their environment which comprises of both home and school environment. However, based on the study no significant relationship  $p > 0.05$  was observed between the mathematics achievement of the girl-child and their parents' occupation.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the Study**

Education they say is the bedrock of any nation. Hence, education is the key towards the sustainability and development of any nation. According to Okobia and Ekejiuba (2015), education is a basic human right. Adeyemi and Adeyemi (2014) opined that for a dynamic and productive society to be created, which would provide fairness and opportunity to all then education has to be the way forward. They further stated that the standards which are maintained in schools would in turn reflect in the academic performance of the students. Okobia and Ekejiuba (2015), described education as a process whereby an inexperienced person is provided with information which would help to develop him/her mentally, physically, socially, economically, spiritually, politically and emotionally. These qualities to which education seeks to imbibe in an individual is the reason for the common catch phrase during convocation ceremonies Vice-Chancellors “being found worthy in both learning and character”.

Hence, Sankale (2014) describes education as the process through which knowledge is acquired by the young to realize their potentials and attain self-actualization, so as to be useful to both themselves and others, thus, being functional members of the society. According to the United States Agency for International Development (USAID, 2017), statistics from the Federal Ministry of Education as at 2017 puts the number of children who do not attend formal schools stands at over 10 million, while another one million children are kept out of school due to the aftermath of conflict.

A report by the British council stated that girls’ education is a human right which is a responsibility to be upheld by all, since a significant contribution is made to the development of a nation which

is stable, prosperous and healthy with active, productive and empowered citizens. All these can be achieved through the education of girls' (British Council, 2014). Hence, the saying "when you educate a man, you educate an individual, however, when you educate a woman, you educate a nation".

However, a report by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2014) puts the number of out-of-school girls at over 5.5 million while another report stated that in the regions of the North-West and North-East, almost two-thirds of the women have no educational background compared to the South-South region where the figure stands at less than 15%.

The United Nations' Children Fund (UNICEF, 2007) reported that the education of girls in Nigeria is limited by a number of factors such as poverty and economic issues, cultural and religious misinterpretation as well as the lack of adequate infrastructure. Omede and Agahiu (2016) further added that, sexual violence and abuse, political factors as well as the school environmental factors forms part of the hindrances to the girl-child education.

Dharmendra (2017) stated mathematics to be the systematic study of assumptions, their properties and applications. Kamau (2018) stated that mathematics is a way of life which provides us with the opportunity of organizing our life's experiences. Hence, the importance of mathematics education cannot be overemphasized as it helps to prepare the students to live a useful life that would be beneficial to him/her and the society at large. Regarded as one of the most important subjects upon which entry into various careers depends, Kane and Merts (2012) suggested that opportunity and the necessary support be made available to all students so as to enable an in-depth learning with understanding of mathematics.

The participation of girls in mathematics education despite its high importance has been an imbalanced issue which is rooted at the point in secondary schools when students are enrolled to learn either Arts or Science subjects (Udousoro, 2012). This imbalance is observable as most girls tends to prefer Arts subjects and professions while majority of boys prefers sciences/mathematics related subjects and professions.

The mathematics education of the girl-child is essentially plagued with discriminatory beliefs and attitudes which are not just common within their families and communities but within the school environments as well. Jones (2016) and Zilimu (2014) in their study highlighted the following as being central to the problems of low performance and participation of girls in mathematics; math subject gender stereotype, unfavourable classroom environments and interactions, lack of informed career counsellor who would encourage girls to pursue studies in the area of mathematics, belief that girls are not capable as required in the areas of sciences, mathematics and technology, lack of motivation and confidence to pursue and excel in mathematics.

## **1.2 Statement of the problem**

Over the years back, the girl-child education in Nigeria has been a thing of wishful dreams which was only achieved by a few. Factors such as cultural and traditional beliefs and other factors which are directly linked to the parents and their environment have been reported to have hindered the girl-child education especially in some states in the Northern part of Nigeria where statistics show a considerable lower percentage of women and girls who are educated or those enrolled in schools for formal education (Muazu and Mairo, 2011). Though many researches have been done on the variables which are capable of influencing the academic achievement of students {Lydia *et al.*, (2013); British Council (2014); Bako (2016)}, not much information is given on how these variables which are related to the parents and environment can affect the mathematics performance

of girl-child as most factors previously identified are related to religious isolation, cultural discrimination, gender driven violence against the roles and status of women, disability, early marriage and pregnancy (Okorie, 2017).

### **1.3 Aim and Objectives**

The aim of this study is to investigate the influence of parental and environmental factors on girl-child mathematics achievement in Bosso LGA, Niger State. The objectives of the study are to:

- i. Examine the influence of parental-related factors such as the achievement of the girl-child in Mathematics
- ii. Examine the impact of environment on the achievement of girl-child in mathematics
- iii. Determine the influence of parent occupation on the Mathematics achievement of the girl-child

### **1.4 Research Questions**

The following questions were raised to guide this study

1. How do parental factors influence the mathematics achievement of the girl-child?
2. How does the environment influence the mathematics achievement of the girl-child?
3. What is the relationship between parent occupation and mathematics achievement of the girl-child?

### **1.5 Research Hypotheses**

The following null hypotheses were formulated for the study

**H<sub>01</sub>:** There is no significant relationship between the mathematics achievement of the girl-child and their parents' influence

**H<sub>02</sub>:** There is no significant relationship between the mathematics achievement of the girl-child and their environment

**H03:** There is no significant relationship between parents' occupation and Mathematics achievement of the girl-child.

### **1.6 Significance of the Study**

The study is significant as it would provide information which would be beneficial to parents, governmental and non-governmental agencies as well as researchers

The findings of this study would better educate parents on how the academic achievements of their wards could be influenced by variables which are dependent on them as parents and the environment and as such they would be better placed in understanding how they could either complement or supplement their ward's efforts towards good academic achievement.

The findings of this study would also be beneficial to Government Agencies, Non-Governmental Organizations (NGOs) and other stakeholders/policymakers in education, as they would be aware of the prevalent variables that are directly linked to parents and the environment, which influences the academic achievements of the girl-child within the area. Hence, they would be better guided in formulating educational policies which would ultimately favour girl-child education and their academic achievements.

The findings of this study would also provide background information and add to the existing body of knowledge with respect to those parental and environmental related factors which influences the mathematics achievement of girl-child especially with Bosso LGA of Niger State. As such, students and other researchers can rely on this study as basis for further research in similar areas.

### **1.7 Scope and Limitation of the Study**

This study focuses mainly on the influences of parents and the environment on the mathematics achievement of the girl-child. The scope of the study is limited to SSS III students in Bosso, Bosso

Local Government Area of Niger State. Co-education private and public secondary schools were selected for the purpose of this study. This study is also limited by parental factors such as: level of education, income, support, home environment as well as school environment. The study focus on the girl-child mathematics achievement as the dependent variable.

### **1.8 Definition of Operational Terms**

**Girl-child education:** this is an all-encompassing term on a number of complex debates and issues which surrounds education (right from primary through tertiary education, as well as, health education) for girls. It is a process whereby the girl-child acquires adequate knowledge, right skills and attitudes which would make them useful to themselves and help integrate them as functional members of the society.

**Achievement:** Achievement means succeeding in getting something difficult done through effort, skills and courage. Achievement in this study relates to the performance scores of the girl-child in mathematics subject.

### **1.9 Assumptions of the study**

1. The respondents were sincere to the best of their knowledge in responding to the items on the questionnaire.
2. The researcher has no influence on the results of the study.
3. There was no interaction between respondents during the administration of the instrument (questionnaire).

## CHAPTER TWO

### 2.0 REVIEW OF RELATED LITERATURE

#### 2.1 Introduction

In this chapter, related literatures were reviewed and discussed under the following sub-headings: Concept of girl-child education, Theoretical framework, Empirical findings and Summary of literatures reviewed.

#### 2.2 Concept of Girl-child Education

Any female from the period of birth up to eighteen years of age is referred to as a girl (Akubuilu and Omeje, 2012). Obinaju (2014) describes education as an all-inclusive right no matter the circumstance of an individual. Generally, education is a form of learning whereby the knowledge, values, skills, habits and benefits of a particular group of people are transferred from generation to generation through discussion, teaching, storytelling, research or training (Omede and Agahiu, 2016). Girl child education according to Okenmor *et al.*, (2012) is an encompassing term which relates to the education for females both academically (primary education all through tertiary education) and their health as well. Girl-education has been a thing of concern particularly in sub-Saharan Africa where the number of girls not in school is high. According to the report by United Nations Children's Education Fund (UNICEF, 2015), globally, the figure of out-of-school children stands at an estimated value of 121 million. 53.8% of this value (65 million) were girls of which over 80% of them are resident in sub-Saharan Africa. Africa ranks the least in the world in terms of primary school completion rates. This has remained a thing of concern for the world since about half of the total number of out-of-school children in the world are concentrated in 15 countries of which eight of them are in sub-Saharan Africa. A report by United Nations Educational, Scientific and Cultural Organization (UNESCO, 2014) puts the number of out-of-school girls in Nigeria at

over 5.5 million while another report stated that in the regions of the North-West and North-East, almost two-thirds of the women have no educational background compared to the South-South region where the figure stands at less than 15%. The National School Census (2006) reported an abysmally high number of out-of-school children in Northern Nigeria with girl to boy ratio of 1:2 and even 1:3 in some states (Saleh and Lasisi, 2010).

### **2.2.1 Barriers to girl-child education**

Several studies (Mukhtar *et al.*, 2011; Alabi *et al.*, 2013; UNICEF, 2015) have outlined a number of factors which acts as barriers to the girl-child education. Some of these factors include;

#### **i. Religious Misinterpretation**

According to Mukhtar *et al.*, (2011), some parents in the North have been misguided about the position of Islam on girls' education and have thus kept their daughters from going to school claiming that girls are not supposed to acquire education. Such parents' belief that western education is a negative initiation and transformation into promiscuity, materialism as well as the inculcation of the ideologies of the Western culture. The fact that Western education was brought and then taught by Christian missionaries was a base of argument which sought to oppose it as it was being viewed by some communities as a propagation of Christian religion (Akubuilu and Omeje, 2012). Many children are indoctrinated to believe that their place of fulfillment can only be found in the home of their husbands and since education (to them) is not so important in getting married and giving birth, they ought to then focus on accepting the choice of their parents, getting married and making such a man happy (Bako, 2016).

#### **ii. Cultural Beliefs**

The deep rooted cultural beliefs of under-developed nations have grossly limited the access to educational opportunities for girls. These cultural beliefs portray the picture that girls' education

ends in the kitchen and on being a good wife and mother. As such, many parents have kept their girl-child from formal education seeing it as a waste of resources (Saleh and Kwache, 2012). The roles of females have been erroneously conceptualized in the Nigerian society to that of child bearing and housekeeping. Some Nigerian societies points out that women should not be seen or heard and as such providing access to education would create a situation for them to be heard or seen (Alabi *et al.*, 2013). In same vein, some believe that women who are educated rarely make good mothers or housewives while some of them may find it difficult in getting a husband to marry them.

### **iii. Socio-Economic Status**

Over 70% of the Nigerian population have been reported to live below the poverty line. As a result, girls are often times sent to hawking wares on the streets and selling in the markets since the parents are unable to send them to school (Omoniyi, 2013). Omoniyi and Oloruntegbe (2014) posited that the major cause of non-education for girl child is as a result of the economic poverty of parents. Under economic pressures, girls are often withdrawn from school so as to make way for the boys who are regarded to be the breadwinners of families.

### **iv. Gender inequality**

The system in most settings have always seem to favour boys more than girls. In large families with limited resources in the North, the boys are sent to school instead of, or before the girls can be sent to school. According to the report by Salman *et al.*, (2011) and UNICEF (2015), boys are generally given more opportunities to answer and ask questions more than girls. Further research showed that only a little time is given to girls to complete task in science classes when compared to the amount of time given to the boys in both primary and secondary schools.

**v. Sexual Violence and Abuse**

Most parents tend to stop their girl children from going to school due to the fear of sexual violence. This fear is often the case when the children have to cover far distances just for school since the schools are not close-by for easy monitoring of their girl child. As a result, the innocent child is prevented from attending schools since the parents are not sure of what “evils” they might involve in (Alabi and Alabi, 2014). More so, the singular fact according to statistics which puts the number of male teachers higher than females has not in any way helped to allay these fears (Faye, 2010).

**vi. Inadequate school infrastructure**

According to the United Nations Children’s Fund (UNICEF, 2015), the situation of most schools is plagued with inadequate classroom and space, equipment and furniture and are most times too remotely located. Similarly, the water, health and sanitary facilities are often times inadequate coupled with a high teacher-pupil ratio of about 1:100 in urban slums. Kanu (2014) posited that, over the years, the few lucky girls who have been allowed access to formal education from been denied from obtaining the best due to the deficiency of qualified teachers absence of standard learning centres and gross shortage of study materials. As a result, majority of the girls leave school even worse than when they entered.

**2.2.2 Benefits of girl child education**

Educating the girl child is not just beneficial to the immediate family but to the entire nation as a whole. As such, education of girl child has been central to the development of a nation’s welfare through the roles they play as stated by Omede and Agahiu (2016).

**1.Reduction of Poverty**

A vital contribution towards the attainment of the Millennium Development Goals which pertains to poverty reduction can be achieved through girl child education. Tinuke (2011) stated that the

quality of living of an educated girl-child is tremendously improved to which both the husband and children are beneficiaries.

## **2. Reduces rate of child mortality**

Women that have formal education would most likely ensure their children's health and safety by seeking medical care, go for their children's immunization, ensure to carry out improved sanitary practices. Such women are also well aware of the nutritional requirements of their children. Hence, children of such women have a rate of survivability and would tend to be better nourished and healthier. A report by the United Nations Women (Nigeria Population Commission, 2013) suggested that if women were to complete primary and secondary education, the under 5% mortality rate would drop by 15% and 49% respectively which would imply saving about 2.8million lives yearly.

## **3. Improved health and nutrition**

Education stands to benefit personal health especially of the girl child. Kiki (2010) stated that education might be the most effective sole weapon towards combating HIV/AIDS in any nation. The awareness of girl child education can reduce HIV/AIDS to a minimal level.

## **4. Multiple inter-generational education**

United Nations (UN, 2012) report stated that for each additional year which a woman stands to be educated, her child spends another 0.32 years in school. This benefit is slightly larger for girls. Hence, every educated mother would see to it that her children goes further than her thus ensuring the development and sustainability of the nation at large.

## **4. Increased in labour force and productivity**

Rather than relying solely on the ideology that the roles of women is to strictly be wives and mothers which would thus reduce their productivity. Education of the girl child would expose them

to the vast world of careers to which they can achieve and make immense contribution to the nations' building whilst still able to fulfill their roles as wives and mothers thus attaining self-satisfaction. Kobani and Nkpola (2014) posited that the increase in the agricultural sector productivity of a lot of developing countries is linked to the level of education of rural women.

### **2.3 Theoretical Framework**

This study is based on the "Equity" theory of Vale and Bartholomew (2008). According to them, equity with respect to gender is associated with equal outcomes, equal treatments and opportunities. As such, equity is a quality which involves fairness and justice to all and is used as a criterion for evaluating various educational aspects. They noted that the mathematics achievement in relation to gender is anchored on the perspectives of deficit, difference and identity theories.

**Deficit perspective:** The perspective of deficit theory states that the inherent deficiencies in the experiences, knowledge and skills of girls would result to a difference in educational outcomes.

**Difference perspective:** These differences among genders have been accepted by some radical feminists but however, argued that the opportunity to use these differences as strength towards mathematical learning and achievement by women have been denied them due to the patriarchal nature of the society.

**Identity perspective:** Modern researchers who are critical of the difference perspective theory argued that a group of learners are not homogenous but are rather individuals with shifting or multiple identities which are shaped by the context of their current situation. This perspective posits that, central to equity, is the need to taking note of the relationships within the classroom, the different identities and concurrently the different needs of the students in a mathematics classroom.

## **2.4 Empirical Findings**

### **2.4.1 Factors influencing the performance of students in Mathematics**

Lucy and Peter (2014) studied the factors contributing to the dismal performance in Mathematics among secondary school girls in Nyamira county, Kenya. The studied sampled a total of 154 respondents comprised of 140 school girls, 7 Mathematics teachers and 7 head teachers. It was observed that the performance of secondary school girls in mathematics was significantly affected to a dismal level by the inadequacy of Mathematics teachers, peer influence, societal gender stereotypes, attitudes, low motivation and inadequate teaching resources. Beatrice *et al.*, (2014) in their study found out that the negative attitudes which girls have towards school negatively affected their performance in mathematics. They further noted that 51% of the population portrayed a negative academic self-concept which further translates to poor performance. Ann and Philomena (2014) reported that the students' performance in mathematics can be affected by factors such as the quality of teachers and their dedication, available school facilities and resources, poor school administration, peer influence, indiscipline in school among others. These factors, they collectively termed "school factor". Kamau (2018) further added that the curriculum of mathematics is a major influencer of performance. She observed that although there was no significant difference in the understanding of Mathematical concepts, boys however performed better in mathematics test which involved problem solving whereas girls performed better in computation. McConney and Perry (2010) further stated that the poor achievement in mathematics and science is factored by socio-economic conditions, home and family background, social incentive and parental support. These findings are indicators of the fact that the academic achievement of a child is essentially an interplay of various factors which could be internally (personal) or externally influencing them either positively or negatively.

#### **2.4.2 Parental related factors and mathematics achievement of the girl-child**

Daniyal *et al.*, (2016) posited that parental factors such as educational background, income and income play a major part in determining students' academic achievement. Kamau (2018) reported that the educational background of parents has a significant influence on the students. A study by Yunus *et al.*, (2018) on parental background and students' academic performance, a comparative study in North-Central Nigeria observed that parental income significantly influenced the performance of the male students more favourably than the female students. The educational career of male children is easily supported by the parent due to their income unlike the female children. Ojimba (2013) in his studies observed that the mathematics achievement of students is significantly influenced by the level of parental support and socio-economic status. Similarly, Lucy and Peter (2014) observed that parental involvement significantly influenced the achievement in mathematics and science. They further observed that the pupils in private schools enjoy more parental involvement than the others in public schools and concluded that parental involvement is a vital predictor of achievement in Mathematics and science. Mairo (2017) stated that the performance of students in m

Mathematics is influenced by family background. Differences in cultural background could affect Mathematics performance on the basis of differing parental experiences, cultural views, interest in Mathematics and attitudes of mathematical education. A study by Eneji *et al.*, (2013) showed that the socio-economic status of parents and family types had a significant influence on the dropout of female students from school.

Findings of this research indicates the strong effect which external factors that are related to parents could have on influencing the academic achievement of children and as such could be used as a vital predictive tool for academic achievement.

### **2.4.3 Environmental related factors and mathematics achievement of the girl child**

Memon *et al.*, (2010) in their study observed that the residential area of students had an impact on their achievement in the matriculation examination. The performance of students from developed and developing area of the study was significantly higher than students residing in the under-developed study area. According to Mahanta (2014); Jayanthi and Srinivasan (2015) in their study, the home environment had a positive correlation on students' academic achievement in mathematics and parents should thus ensure to maintain a healthy home environment through provision of learning facilities, encouragement and active assistance. Shamaki (2015) opined that the learning environment play a significant role in influencing the academic achievement of students in mathematics. He highlighted the following components of a learning environment which influences the academic achievement of students: painting and lighting, seat and sitting arrangement, air quality (ventilation), class size, facilities such as chalkboard. Lydia *et al.*, (2013) in their study observed that the performance of girls in mathematics was significantly better with a class size range of less than 45 students compared to classes with number of students exceeding 45. Hence, they opined that class size plays a major role in influencing mathematics performance of girls. Mudassir *et al.*, (2015) further explained the impact of the school environment on academic performance by pointing out that a weak relationship between teachers and students would adversely affect the attitudes of students with respect to the teaching-learning environment and ultimately the students' performance.

### **2.5 Summary**

The purpose of this study is explained in this chapter in line with the relevant literatures reviewed. This chapter explained the idea of girl-child education, the current trends and statistics pertaining

to the girl child as well as the limitations and importance of the girl-child education. This chapter presents the theoretical background of this study. The study is anchored on the equity theory of Vale and Bartholomew (2008) which explains the mathematical performance of the girl-child as influenced by inherent personal attributes, societal perception on gender and the individual self-concept. The study reviewed mathematical performance of girl-child as influenced by parental and environmental factors. These factors include socio-economic status, educational background, family type, parental involvement, available learning facilities and conduciveness of the environment.

## CHAPTER THREE

### 3.0 RESEARCH METHODOLOGY

This chapter contains a description of the procedure by which the research work was carried out. This procedure was outlined as follows; Research design, Population of the study, Sample and Sampling technique, Research instruments, Validating and Reliability of Research Instrument, Pilot Study, Method of Data Collection and Method of Data Analysis.

#### 3.1 Research Design

The cross-sectional survey type of Research Design was adopted for the purpose of this study was the type of research design allows a sample to be drawn from a population which would serve as representatives of the whole population and would also be used as base is for generalization of that population (Bako, 2015).

#### 3.2 Population of the Study

The population of this study is made up of one hundred and sixty-two (162) female students in SSS III class 2019/2020 session from four secondary schools in Bosso LGA of Niger State.

**Table 3.2: Distribution of Female SSS III Students by Schools**

<b>School</b>	<b>Distribution</b>
1. Bahago Secondary School	47
2. Bosso Secondary School	53
3. Federal University of Technology Minna model Staff secondary school	33
4. St. Clement Secondary School	29
<b>Total</b>	<b>162</b>

Source: School Academic Records, 2019

### 3.3 Sample and Sampling Technique

The adopted method of sampling used in this study is referred to as simple random sampling. This sampling technique involves randomly selecting a number of individuals (sample) to form a subset of a larger set of individuals (population) such that each individual has same chance of being selected with others at any stage of the sampling process. The table by Krejcie and Morgan (1970) was used to determine the sample size for this research. A total of one hundred and fourteen (114) female students in SSS III was randomly selected.

**Table 3.3: Sample distribution of SSS III Students by Schools**

<b>School</b>	<b>Number of Female Students</b>
1.Bahago Secondary School	33
2.Bosso Secondary School	37
3. Federal University of Technology Minna model Staff secondary school	23
4.St. Clement Secondary School	21
<b>Total</b>	<b>114</b>

Source: School Academic Records, 2019

### 3.4 Research Instruments

A 22 itemed well-structured closed-ended questionnaire developed by the researcher was be used as the research instrument for this study titled “Influence of Parental and Environmental Factors on Girl-Child Mathematics Achievement in Bosso LGA, Niger State Questionnaire”. The close-ended questionnaire was structured into four sections. Section A contains a demographic information of the respondents; Section B contains parental related factors which could influence girl-child mathematics achievement; Section C contains environmental related factors which could influence girl-child mathematics achievement while Section D contains student previous academic record in mathematics. A 4-point Likert scale was used to score the items on the questionnaire.

### **3.5 Pilot Study**

The study is essentially based on evaluating impact of parents and the environment on mathematics performance of girl child. As such, the effects of parental and environmental related factors on mathematics performance as well as the inter-relationships occurring between these factors should help provide meaningful data which would assist in better enlightening parents on the roles they and the environment play in affecting the Mathematical performance of their girl child either positively or negatively.

### **3.6 Validation of Research Instrument**

The research instrument was validated by three (3) experts in Mathematics education who are senior lecturers from the department of science education the project supervisor's observations were also invaluable.

### **3.7 Reliability of Research Instrument**

A pilot test was carried out in Female Schools located at Tudun Fulani, Bosso Local Government Area which is not part of the targeted population. The test was carried out to assess the reliability of the instrument as well as refine test items where necessary, and the data collected were analyzed statistically through the use of Pearson Product Moment Correlation to determine the value of reliability index which was found to be 0.78.

### **3.8 Method of Data Collection**

Upon visitation of the selected schools by the researcher, official permission was sought from the school authorities asking for their cooperation, from both staff and students to allow the researcher unrestricted access to the students to distribute the questionnaire and collect their responses. Test items was administered by the researcher through personal interview with female students of the selected schools using a well-structured questionnaire. Data was collected based on the

performance of the students in their previous Mathematics examination, Parental and Environmental related factors which influences their performance. Results from the respondents was collected and scored accordingly.

### **3.9 Method of Data Analysis**

Data obtained was analyzed at  $P < 0.05$  significance level using descriptive and quantitative statistics. Frequency and percentage tables and Pearson Product Moment Correlation Coefficient were used in the data analysis using Statistical Package for Social Sciences (SPSS) 21.00 version.

## CHAPTER FOUR

### 4.0 RESULT AND DISCUSSION

The purpose of the study is to examine the influence of parental-related factors and the environment on the Mathematics performance of the girl-child in Bosso LGA, Niger State. This chapter contains a discussion on the data analysis, presentation of the results gotten from the data analyzed and a discussion of the results. Data collected from this study were analyzed statistically using frequency, percentage and Pearson Product Moment Correlation Coefficient statistical tools.

#### 4.1 Presentation of Results

For the purpose of this study, three (3) research questions were raised and three (3) null hypotheses were formulated and tested at  $p < 0.05$  significance level which formed the basis of either accepting or rejecting a null hypothesis.

The following statistical techniques were used in analyzing the data: Frequency, Percentage and Pearson Product Moment Correlation Coefficient.

**Table 4.1 Age Distribution of Respondents**

Age	Frequency	Percentage (%)
14-17	84	73.7
18-20	25	21.9
21-23	5	4.4
Above 24	0	0
<b>Total</b>	<b>114</b>	<b>100</b>

Table 4.1 shows a description of the age distribution of the respondents. The table revealed that 84 (73.7%) of the respondents were within the ages of 14-17 while 25 (21.9%) were within the ages of 18-20, 5 (4.4%) were within the ages of 21-23 and 0 (0%) above 24.

**Table 4.2 Socio-Economic Status of Parents**

<b>Socio-Economic Status</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Rich	33	28.9
Average	75	65.8
Poor	6	5.3
<b>Total</b>	<b>114</b>	<b>100</b>

Table 4.2 shows a description of the Socio-economic status distribution of parents as expressed by the students. The table revealed that 33 (28.9%) are rich, 75 (65.8%) are of average status while 6 (5.3%) are poor.

**Table 4.3 Family Size Distribution**

<b>Family Size</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Below 4	18	15.7
4-8	63	55.4
9-13	33	28.9
Above 13	0	0
<b>Total</b>	<b>114</b>	<b>100</b>

Table 4.3 shows a description of the family size of respondents. The table revealed that 18 (15.7%) have a family size below 4, 63 (55.4%) are from a size of between 4-8 while 33 (28.9%) have a family size of 9-13 and 0 (0%) above 13.

**Table 4.4 Summary of Fathers' level of Education**

<b>Fathers' Level of Education</b>	<b>Frequency</b>	<b>Percentage (%)</b>
University	50	43.9
Polytechnic	32	28.1
College of Education	3	2.6
Secondary	22	19.3
Primary	1	0.9
Illiterate	6	5.3
<b>Total</b>	<b>114</b>	<b>100</b>

Table 4.4 shows a description of the fathers' level of education. The table revealed that 50 (43.9%) had a university education, 32 (28.1%) went to a polytechnic, 3 (2.6%) went to a college of education, 22 (19.3%) had only secondary education while 1 (0.9%) had only primary education and 6 (5.3%) were reported to be illiterate.

**Table 4.5 Summary of Mothers' level of education**

<b>Mother's Level of Education</b>	<b>Frequency</b>	<b>Percentage</b>
University	45	39.5
Polytechnic	17	14.9
College of Education	8	7
Secondary	18	15.8
Primary	9	7.9
Illiterate	17	14.9
<b>Total</b>	<b>114</b>	<b>100</b>

Table 4.5 shows a description of the mothers' level of education. The table revealed that 45 (39.5%) had a university education, 17 (14.9%) went to a polytechnic, 8 (7%) went to a college of education, 18 (15.8%) had only secondary education while 9 (7.9) had only primary education and 17 (14.9%) were reported to be illiterate.

**Table 4.6 Summary of parents' Occupation**

<b>Parents' Occupation</b>	<b>Frequency</b>	<b>Percentage</b>
Civil Servant	77	67.6
Hand work	16	14
Trader	21	18.4
<b>Total</b>	<b>114</b>	<b>100</b>

Table 4.6 shows a description of the respondents' parents' occupation. The table revealed that 77 (67.6%) are civil servants, 16 (14%) had a hand work while 21 (18.4%) are traders.

### 4.3 Hypotheses Testing

For the purpose of this study, the following null hypotheses were formulated and tested at 0.05 significance level.

**Ho1:** There is no significant relationship between the Mathematics achievement of the girl-child and their parents' attitude

**Table 4.7: Relationship between Students' Academic Achievement and Parental Influence**

		Academic achievement	Parental attitude
Academic achievement	Pearson		
	Correlation	1	.219*
	Sig. (2-tailed)		0.019
	N	114	114
Parental attitude	Pearson		
	Correlation	.219*	1
	Sig. (2-tailed)	0.019	
	N	114	114

\* Correlation is significant at the 0.05 level (2-tailed).

The results from table 4.7 shows a correlation value of 0.219 and p value of 0.019. Since  $p < 0.05$ , the null hypothesis 1 was hence rejected. There was a positive linear relationship between the mathematics achievement of the girl-child and their parents' attitudes

**Ho2:** There is no significant relationship between the mathematics achievement of the girl-child and their environment

**Table 4.8: Relationship between Students' Academic Achievement and Environment**

		Academic achievement	Environment
Academic achievement	Pearson		
	Correlation	1	.202*
	Sig. (2-tailed)		0.031
	N	114	114
Environment	Pearson		
	Correlation	.202*	1
	Sig. (2-tailed)	0.031	
	N	114	114

\*. Correlation is significant at the 0.05 level (2-tailed).

The results from table 4.8 shows a correlation value of 0.202 and p value of 0.031. Since  $p < 0.05$ , the null hypothesis 1 was hence rejected. There was a positive linear relationship between the mathematics achievement of the girl-child and their environment.

**H<sub>03</sub>:** There is no significant relationship between the mathematics achievement of the girl-child and their parents' occupation.

**Table 4.9: Relationship between Students' Academic Achievement and Parents' Occupation**

		Academic achievement	Parents' occupation
Academic achievement	Pearson Correlation	1	0.127 <sup>NS</sup>
	Sig. (2-tailed)		0.177
	N	114	114
Parents' occupation	Pearson Correlation	0.127 <sup>NS</sup>	1
	Sig. (2-tailed)	0.177	
	N	114	114

NS: Not Significant

The results from table 4.9 shows a correlation value of 0.127 and p value of 0.177. Since  $p > 0.05$ , the null hypothesis 1 was hence accepted. There is no significant relationship between the mathematics achievement of the girl-child and their parents' occupation.

#### **4.4 Major Findings and Discussion of Results**

The major aims and objective of the study was to examine the influence of parental-related factors and the environment on the Mathematics achievement of the girl-child in Bosso LGA, Niger State. The results obtained from the correlation values of table 4.7 revealed that a significant relationship exists between the parental-related factors and the Mathematics achievement of the girl-child in Bosso LGA, Niger State. The results are in concordance with the findings of Lucy and Peter (2014) and Yunus *et al.*, (2018) that there was a significant difference in the Mathematics achievement of students as influenced by their parents' attitudes and other related factors. The implication of these finding is the fact that the achievement of students in Mathematics and academics in general goes beyond the students' potentials but is also a function of the interplay of various factors which are not dependent on the students but their parents.

The result obtained from the correlation values in table 4.8 revealed that a significant relationship exists between the environment and the Mathematics achievement of the girl-child in Bosso LGA, Niger State. The result agrees with the findings of Shamaki (2015) and Mudassir *et al.*, (2015) who observed that the learning environment play a significant role in influencing the academic achievement of students in mathematics and is also vital in expressing the strength of teacher-student relationship which would affect the attitudes of students with respect to the teaching-learning environment and ultimately the students' performance.

The result in table 4.9 however revealed that no significant relationship exists between the mathematics achievement of the girl-child and their parents' occupation. This finding disagrees with the findings of Yunus *et al.*, (2018) who observed that parental income significantly influenced the achievement of students in Mathematics. This contrasting findings may be as a result of the scope of the studies since this studies essentially focused on the achievement of the

girl child whereas their study was limited to both boys and girls where more attention and support were given to boys than girls.

## **CHAPTER FIVE**

### **5.0 SUMMARY, CONCLUSION AND RECOMMENDATION**

This chapter contains a summary of the procedures used in this study, the contribution of the study to knowledge, conclusion of findings and recommendations advanced towards improving the mathematics achievement of the girl-child as well as suggestions for further studies.

#### **5.1 Summary**

The study was carried out so as to examine the influence parental-related factors and the environment on the Mathematics achievement of the girl-child in Bosso LGA, Niger State. The researcher administered a well-structured questionnaire titled “influence of parental and environmental factors on girl-child Mathematics achievement in Bosso LGA, Niger State” which was used as the instrument for data collection for the study. Prior to the administration of the research instrument, a pilot test was carried out to ascertain the effectiveness with which the instrument is able to adequately measure the variables in questions. Statistically, frequency, percentage and Pearson product moment correlation coefficient was used to analyze the data obtained from the administration of the research instrument. The findings revealed that a significant relationship exists between parental-related factors and the Mathematics achievement of the girl-child. The result also revealed that a significant relationship exists between the environment and the Mathematics achievement of the girl-child. However, no significant relationship was observed between the mathematics achievement of the girl-child and their parents’ occupation.

#### **5.2 Implication of the Study**

The findings of this study have implication in showing the roles which parents play in influencing the mathematics achievement of their girl-child beyond merely giving birth to them and enrolling

them in school. Also the environment is not left out in influencing the Mathematics achievement of students. The support and attitudes of parents together with the nature of the environment which students are exposed to would either make or mar their mathematics achievement.

### **5.3 Contribution of the Study**

The study helps to serve as a report to teachers, parents and educational stakeholders at all levels of governments on how the environment as related to learning and the background and attitude of parents can contribute to overall achievement of students. This study helps teachers to better understand the importance of ensuring good teacher-student relationship which goes beyond having conducive and adequate learning facilities.

This study will also helps students and researchers in attaining additional knowledge in the area of education.

### **5.4 Conclusion**

Based on the findings of this study, the following conclusions was drawn that

Students showed better achievement in mathematics with better and supportive attitudes and influence from their parents towards their mathematical problems, the nature of the environment to which students are exposed would influence their achievement either positively or negatively.

### **5.5 Recommendations**

The following recommendations were made based on the findings of this study:

1. Irrespective of their backgrounds, parents should ensure to always have a right attitude towards the academic performance of their wards always providing the support required for better academic achievement where and when necessary.
2. Similarly, teachers and educational stakeholders should ensure to provide conducive learning environment for students as well as always strive for healthy teacher-student relationship.

3. Guidance and counselling units should be provided to help address the academic challenges which girl-child may face with respect to views and opinions about mathematics and science education in general as touching gender equality.

### **5.6 Suggestions for Further Study**

Based on the findings of this research, the following suggestions were made for further studies:

1. A follow up study should be carried out to cover all secondary schools within the state.
2. A similar study should be carried out as touching the achievement of students in other subject areas

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## **APPENDIX 1**

**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
DEPARTMENT OF SCIENCE EDUCATION (MATHEMATICS EDUCATION  
OPTION)**

**P.M.B 65 MINNA, NIGER STATE, NIGERIA**

### **INFLUENCE OF PARENTAL AND ENVIRONMENTAL FACTORS ON GIRL-CHILD MATHEMATICS ACHIEVEMENT IN BOSSO LGA, NIGER STATE**

Dear Respondent,

I am Atoyebi, Mary Oluwashola, a final year undergraduate student of the above mentioned institution, in the Department of Science Education (Mathematics Education option), School of Science and Technology Education (SSTE), who needs the information on the questions below. This exercise is for academic purposes only. It is to enable me successfully carry out my research on the topic, **“INFLUENCE OF PARENTAL AND ENVIRONMENTAL FACTORS ON GIRL-CHILD MATHEMATICS ACHIEVEMENT IN BOSSO LGA, NIGER STATE”**. The information to be provided here will be treated with utmost confidentiality.

The instrument is made up of Section A, B, C, D. Section A is made up of respondents' biodata, Section B parental demographic data, Section C parental factors and Section D environmental factors: home and school environment.

**SECTION A: PERSONAL INFORMATION**

1. School \_\_\_\_\_
2. Class \_\_\_\_\_
3. Age                      15 – 17 ( )                      18 – 20 ( )                      21 – 23 ( )                      Above 24 ( )
4. Sex                      Male ( )                      Female ( )

**Please tick the items (/) in Section C and D as considered appropriate: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD)**

**SECTION B: PARENTAL DEMOGRAPHIC DATA**

1. Family background  
 Rich ( )                      Average ( )                      Poor ( )
2. Family Size  
 Below 4 ( )                      4-8 ( )                      9-13 ( )                      14 and above ( )
3. Father’s level of education  
 University ( )                      Polytechnic/College of Education ( )                      Secondary ( )  
 Primary ( )                      Illiterate ( )
4. Mother’s level of education  
 University ( )                      Polytechnic/College of Education ( )                      Secondary ( )  
 Primary ( )                      Illiterate ( )
5. How often do your parents assist you to do your homework?  
 Always ( )                      Sometimes ( )                      Never ( )

**SECTION C: PARENTAL FACTORS AS PERCIEVED BY THE RESPONDENTS**

<b>Items</b>	<b>SA</b>	<b>A</b>	<b>D</b>	<b>SD</b>
My parents assist and encourage me to do my homework				
My parents provide learning materials for me				
My parents do not care about my education				
My parents have little or no understanding about my performance in mathematics				
My parents provide extra-mural tutor for me				

**SECTION D: ENVIRONMENTAL RELATED FACTORS**

### Home Environment

Items	SA	A	D	SD
I feel it is easy for me to study at home				
I usually have adequate time to study at home				
I prefer to study and carry out my assignments at home				
I usually get more assistance at home in solving my mathematical problems				
Most girls in my neighborhood do not go to school				

### School Environment

Items	SA	A	D	SD
My classroom is conducive for learning				
My school have adequate facilities and equipment to aid learning				
I enjoy and understand the method of teaching employed by my teacher in class				
Most people around me believe that girls don't perform well in mathematics				
The attitude of people around me negatively affect my achievement in mathematics				