

Relationship Between Parenting Styles and Academic Performance in Mathematics of Senior Secondary School Students in Imo State, Nigeria

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Abstract

This study investigates the relationship between parenting styles and academic performance of students in mathematics of senior secondary school students in Owerri Municipal Council, Imo State. The purpose of the study was to identify the parenting styles; determine the academic performance of students in mathematics and to ascertain the significant relationships between parenting styles and academic performance of students in mathematics. Research questions and hypotheses were developed from the specific objectives of the study. This research involved only SS2 students of selected eleven public secondary schools in Owerri Municipal Council in Imo State, Nigeria. The population of the study was the total of 4,483 SS2 students while the sample size was 483 students representing about 10%. Parenting Perception Styles Questionnaire (PPSQ) along with 40 standardized objectives mathematics test questions were administered to the 483 sampled students using balloting without replacement. 464 questionnaires representing 97.4% were returned. The responses (data) were collected, weighted and analyzed using mean score rating average and Pearson product moment correlation coefficient. The findings of this study revealed that all the parenting styles have no significant relationship with academic performance of student in mathematics and this implied that stakeholders should not pay too much attention to the issue of parenting styles when dealing with teaching and learning mathematics. The research recommends that stakeholders should not place too high importance on the relationship between parenting style and academic performance in mathematics with regards to increasing academic performance in mathematics senior secondary school students. The research further advocates that parents should explore innovative strategies beyond traditional parenting to enhance their children's academic performance in mathematics. It emphasizes the importance of strong collaboration between parents and teachers in developing and implementing effective approaches to support students' success in the subject.

Keywords: Parenting Styles, Academic Performance, Mathematics, Senior Secondary Schools, Relationship.

1.0 INTRODUCTION

Mathematics results have been pivotal in the measurement of academic successes in the Senior School Certificate Examinations (SSCE) in Nigeria. Students' success in SSCE examinations seems not to be complete without a credit pass in Mathematics. This is so because Mathematics is core to the arts, social sciences and sciences in the pursuit of higher education. More so, Nigeria is faced with multifaceted social and economic problems like poverty, unemployment, poor quality of education amongst others. In as much as the responsibility of providing solutions to these multidimensional problems presently depends on the government, the future responsibility falls on the youth. This would be possible if the youths are properly developed cognitively as children, and receive quality and high standards of education.

Provision of quality education has not been well achieved within the country, given the difficulties that are inherent in the educational system, observed in the sporadic changes in academic performance of students in mathematics in national examinations. These inherent problems which affect quality education are not the only problems, as studies have shown the impact parenting and parenting styles have on academic performances of students (Ofosu-Asiamah, 2013). Expanding his views, he also opines that cognitive development is a feature of parenting style and depending on the type of parenting received; a child's cognition may develop positively or negatively and affect educational attainment.

Parenting could be defined as the act of raising children, while parenting style could be defined as the method of rearing children. Darling and Steinberg (1993) (as cited in Arenliu, Hoxha, Bexulli & Jemini-Gashi, 2014) define parenting style as a constellation of attitudes toward the child that are communicated to the child and that, taken together, create an emotional climate in which the parent's behaviours are expressed. Academic performance on the other hand could be defined as the overall score of a student in a particular subject (in this case-mathematics) culled from test question extracted from past West African Examination Council (WAEC) and National Examination Council of Nigeria (NECO) question papers. The scores was rated as 0-39 (poor), 40-64 (average) and 65-100 (good).

Parenting styles and outcomes among children such as psychological, emotional, social and personality development problems (aggression), as well as cognitive development problems which may affect their academic performance (Baumrind, 1967, 1991). Authoritarian parenting styles have generally been found to lead to children who are obedient and proficient, but rank lower in happiness, social competence and self-esteem. Authoritative parenting styles tend to result in children who are happy, capable and successful (Maccoby, 1992). Permissive parenting often results in children who rank low in happiness and self-regulation. These children are more likely to experience problems with authority and tend to perform poorly in school. Neglectful parenting styles rank lowest across all life domains. These children tend to lack self-control, have low self-esteem and are less competent than their peers (Cherry, 2012 cited in Ofosu-Asiamah, 2013). In general, authoritative parenting style emphasizing both responsiveness and demandingness appears superior in fostering higher academic performance (Reitman et al., 2002; Turner et al., 2009 cited in Ofosu-Asiamah, 2013).

Parenting and high standard quality education are crucial to developing the right human resources who can take part in the development endeavors in order to help alleviate the problems that plague the nation. Parents, therefore, play a vital role in the development of their children as evident in Ecological Systems theory by Bronfenbrenner (1979) as cited in Ofosu-Asiamah (2013). Various studies have shown that parents really do have profound and long-lasting effects on their children's capacity for happiness, and some styles of parenting tend to promote the development of

happiness, while others do the opposite. That is, parenting which is the regulation of behaviour and development of children, with the intention that they can live a socially desirable life, adapt to their environment, and pursue their own goals (Bradley and Caldwell, 1995 as cited in Ofosu-Asiamah, 2013), requires certain styles of parenting which have the tendency to make the child develop well and be happy or may rather have the opposite effect on him or her (Huxley, 2001). In Nigeria however, the gap between parents and the academic supervision of their children is widening due to the harsh economic situation which necessitates the parents to work long hours outside the home. Most parents alternatively leave their children and wards in the care of teachers as surrogate parents long after they dismiss from school by way of enrolling them in extra-mural classes that could keep the children further in school before the parents come back from their places of work. This trend has almost totally confined the responsibility of the supervision of the academic performance of the children to their school teacher(s). Many research studies have examined the relationships between parents, students, and academic achievement, including the effect of parenting style on student achievement (Aunola & Nurmi, 2004; Dornbusch, Ritter, Leiderman, Roberts & Fraleigh, 1987). Several of these studies point to a positive relationship between authoritative parenting, characterized by high levels of both warmth (responsiveness) and parental control (demandingness), and student academic achievement (Baumrind, 1967; Maccoby & Martin, 1983).

According to Ramirez, Xiaowei, Schofer, & Meyer (2006) (as cited in Kramer (2017)), many educators and policy makers view science and mathematics achievement as a major contributor to keeping the United States competitive economically in the increasingly global and technological world. As a result, increasing mathematical achievement of students in the United States is a top priority. Nigeria copies most of the educational policies of the United States, and if Nigeria will make a strong global and technological impact like the United States, there is a need to improve on the mathematics achievements of students in Nigeria.

In Trends and International Mathematics and Science Study (TIMSS), conducted by the International Association for the Evaluation of Educational Achievement (IEA) (2011), they examined contextual factors that contribute to student success in mathematics. The first two factors that were identified as having a strong positive relationship to high achievement scores involve parents: early exposure of children to mathematical concepts and access to academic resources in the home, such as parental support and books (Mullis et al., 2012). The concept that parents have a significant impact on student achievement is not new. Bandura (1997) cited in Kramer (2017) opines that parents and other primary caregivers represent a child's first teacher and greatly affect a child's self-efficacy, self-esteem, identity development, and motivation - all factors that have been found to relate positively to student academic achievement. There has been observed inconsistency in the Mathematics performance in Senior Secondary School Certificate examinations in recent years in Nigeria. This could be attributed to the relationship between the parents and their children. This research, however, will focus on the relationship between parenting styles and mathematics achievement. It is in this wise, that the study reported here will be done to assess the relationship between parenting styles parents use have on the academic performance of students in Mathematics.

Statement of the Problem

Generally, there has been a constant fluctuation in the academic performance of the Senior Secondary School Certificate Students in Nigeria in recent years especially in mathematics.

According to the West Africa Examination Council (WAEC), in the 2018 Senior School Certificate Examination results only 49.98% of the candidates obtained credits and above in minimum of five subjects including English and Mathematics while 54.59% obtained credits and above in a minimum of five subjects including English Language but without Mathematics. According to WAEC, in 2016, the total percentage of candidates that had five credits and above in English Language and Mathematics was 52.97%, while in 2017, it was 59.97% (Vanguard Newspaper, July 4, 2018). This could be attributed to lapses in parenting and parenting styles. The SSCE mathematics results in Imo State has had a fair share of this inconsistency in the performance of the students. According to WAEC, only 53.7 percent of the students scored at least a credit in mathematics in 2016, while only staggering 50.9 and 50.2 percent scored at least a credit in mathematics in 2017 and 2018 respectively (Vanguard Newspaper, July 4, 2018). There is However, there is a decrease of 7.69% in performance of WAEC students who obtained credit and above in a minimum of five subjects including English and Mathematics from 2023 to 2024 (Vanguard Newspaper, August 12, 2024). This study was therefore hinged on this premise. In addition, there are several researches on the study of the relationship between parenting styles and academic performance of students; very few however focus on the impact of parenting style specifically on mathematics achievement. This study assessed the level of relationship between the different parenting styles and secondary school students' achievement in Mathematics in Nigeria.

Purpose of the Study

The main purpose of this study was to establish the relationship between parenting styles and academic performance of students in mathematics. Specifically, the study sought to;

1. Identify the parenting styles of the Senior Secondary School Students in Owerri Municipal.
2. Determine the academic performance of the Senior Secondary School Students in Mathematics in Owerri Municipal.
3. Ascertain the significant relationships between the different parenting styles and academic performance of students in mathematics in Owerri Municipal.

Research Questions

In this study, the following research questions were addressed:

1. What are the parenting styles of the Senior Secondary School Students in Owerri Municipal?
2. What is the academic performance of the Senior Secondary School Students in Mathematics in Owerri Municipal?
3. What is the relationship between the various parenting styles and academic performance of Senior Secondary School Students in mathematics in Owerri Municipal.

Hypotheses:

The following hypotheses were formulated for the study:

- H₀1 There is no significant relationship between authoritative parenting style and academic performance of senior secondary school students in mathematics.
- H₀2 There is no significant relationship between authoritarian parenting styles and academic performance of senior secondary school students in mathematics.
- H₀3 There is no significant relationship between permissive parenting styles and academic performance of senior secondary school students in mathematics.

H₀4 There is no significant relationship between uninvolved parenting styles and academic performance of senior secondary school students in mathematics.

Scope of the Study

This research work involved identifying parenting styles exhibited by the parents of the students and also the determination of the academic performance of Senior Secondary School (SS2) students in mathematics. The study was carried out at Owerri Municipal Local Government Area of Imo State, and it involved only public (state owned) secondary schools in the municipality. Only the SS2 students were selected for this study. This was due to the fact that the SS2 classes have gone through rigorous mathematics lessons from the junior class through the SS1 and the students would have shown ease or difficulty in the subject. Also, the class stands a chance to be studied since it is the penultimate class to the Senior School Certificate Examinations organized by WAEC and NECO.

This work also studied how the different parenting styles relate with their performance in mathematics.

2.0 REVIEW OF RELATED LITERATURES

A proper understanding of parenting, parenting styles and their relationship with academic performance of senior secondary school students in mathematics, helped to situate this research in the proper context. This literature review was discussed under the conceptual framework and theoretical framework.

2.1 Conceptual Framework:

To put this study in a proper perspective, there was need to explain vividly some basic concepts. These concepts include parenting, parenting styles, academic performance, and mathematics.

Concept of Parenting:

According to Wikipedia, the word “parenting” is derived from the Latin verb *parere*, which means “to bring forth or produce”. Parenting is the act of performing a role of a parent by care-giving, nurturance and protection of the child by a natural or substitute parent. The parent supports the child by exercising authority and through consistent, empathic, appropriate behavior in response to the child’s needs. “Parenting is the process of promoting and supporting the physical, emotional, social, and intellectual development of a child from infancy to adulthood. Parenting refers to the activity of raising a child rather than the biological relationship.” (en.wikipedia.org/wiki/). Parenting could therefore be done either by biological parents or caregivers other than direct parents.

The concept of parenting is directly or indirectly linked with academic performance of the children. Parents or caregivers are the first teachers to their children or wards. They draw up their first informal curriculum and study time tables. They provide the study materials to aid the child’s learning and academic development. The concept of parenting has a direct bearing on academic performance of students in mathematics. This is so, as the interest for the subject could either be encouraged or discouraged by the actions of the parents.

Concept of Parenting Style:

Parenting style on the other hand, could be defined as the method of rearing children. Darling and Steinberg (1993) cited in Arenliu et al (2014) define parenting style as a constellation of attitudes toward the child that are communicated to the child and that, taken together, create an emotional climate in which the parent's behaviours are expressed. The concept of parenting style was first traced to the works of a Psychologist Diana Baumrind in 1967 where she conducted a study on over 100 preschool-age children and identified four important dimensions of parenting. These dimensions were communication style, warmth and nurturance, disciplinary style and expectations of growth and maturity. Based on these dimensions, Baumrind suggested three parenting styles namely, authoritative, authoritarian and permissive parenting styles. Further research by Maccoby and Martin (1983) based on two major elements of demandingness and responsiveness, modified Baumrind's dimensions of parenting and also suggested the addition of a fourth parenting style – the neglectful or rejectful or uninvolved parenting style. Parental demandingness also referred to as behavioral control refers to the claims parents make on children to become integrated into the family, by their maturity demands, supervision, disciplinary efforts and willingness to confront the child who disobeys. Parental responsiveness (parental warmth or supportiveness) on the other hand refers to the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children's special needs and demands. Baumrind (1967) asserted that each parenting style is characterized by either low or high of all or some of the dimensions of parenting, which are disciplinary strategies, warmth and nurturance, communication styles and expectations of maturity and control.

Authoritative parents are known to exhibit all four characteristics in an optimum and balanced form. The authoritarian style is characterized by high levels of disciplinary strategies where parents set strict rules and met out severe punishments. Also, it is characterized by parent's setting high expectations for their children, coupled with excessive control and supervision over them. However, communication and warmth are low. The permissive style of parenting is characterized by high levels of warmth but low levels of communication, disciplinary strategies and expectations concerning maturity and control. Finally, the neglectful style of parenting is low in all four dimensions but sometimes high in terms of punishment. The authoritarian parents are characterized by enforcing many rules that are to be obeyed without question. Misbehavior is not tolerated and authoritarian parents may typically resort to punishment as a way to control their children's behavior. In Baumrind's view, authoritarian parents have high demandingness/control (which is a good thing) but low responsiveness (which is not so good). Conversely, permissive parents strongly believe that in autonomy of the individual and that the children should be treated as equals. Permissive parents impose very few rules on their children and their children are typically included in decision making processes. Baumrind believes the permissive parents are too soft because they have low demandingness/ control but high responsiveness which is good her view. The authoritative parenting style may be seen as a mix of the authoritarian and the permissive parenting styles in that it has high demandingness/control and high responsiveness. They are assertive and have clear standards for their children. At the same time they also try to be supportive and understanding their children's point of view. In this way they strive to balance their children's needs for autonomy with their own need for control. The neglectful or rejectful or uninvolved parenting style was formulated by Maccoby and Martin (1968). The neglectful parents fulfil their children's physical needs but are otherwise distant, detached, and disengaged. They are not participating emotionally in their children's lives. Neglectful parents have low demandingness/control and low responsiveness/warmth. All these styles tend to impact either positively or negatively on parent's role, responsiveness, control and expectations. These impacts

on parents also tend to affect children psychologically, socially, emotionally, the personality traits developed and finally their academic performances.

Parenting style has a direct bearing on academic performance of students in general and mathematics in particular. Seth and Ghormode (2013) opine that authoritative parenting has a strong positive and significant relationship with academic achievement of mathematics, language, social science and science in India. Conversely, Kramer (2017) opines that authoritative parenting style does not necessarily translate into high academic achievements in mathematics in high school students in United States.

The concept of parenting style as one of the variables of this study would help to understand the various aggregates of parenting that would lead to a higher academic performance in mathematics among secondary school students.

Concept of Academic Performance:

The terms “academic performance”, “academic achievement” and “learning outcomes” are commonly used interchangeably by some researchers and sometimes used differently. In relation to educational research, academic performance of a student can be regarded as the observable and measurable behaviour of a student in a particular situation (Yusuf, 2009). For example, the academic performance of a student in mathematics includes observable and measurable behaviour of a student at any point in time during a course. In mathematics student's academic performance consists of his scores at any particular time obtained from a teacher-made test. Therefore, we can equate academic performance with the observed behaviour or expectation of achieving a specific statement of or statement of educational intention in a research. Academic performance of students consists of scores obtained from teacher-made test, terminal examination, and so on.

Achievement is defined as measurable behaviour in a standardised series of tests (Simpson and Weiner, 1989). Achievement test is usually constructed and standardised to measure proficiency in school subjects. According to Bruce and Neville (1979), educational achievement is measured by standardized achievement test developed for school subjects. What this means is that academic achievement is measured in relation to what is attained at the end of a course, since it is the accomplishment of medium or long term objective of education. What is important is that the test should be a standardized test to meet national norm. For a test to be standardized, it must be valid for over a period of time. Achievement is regarded as action of completing or attaining by exertion. It subsumes anything won by exertion, a feat, a distinguished and successful action. Simpson and Weiner (1989) contended that achievement test intends to measure systematic education and training in school occupation towards a conventionally accepted pattern of skills or knowledge.

Studies have shown that outcome is a generic word which can be used for both performance and attitude or achievement and attitude. In other words, outcome measures the general statement which provides for both academic performance/achievement and attitude. Learning outcome also provides for measurement of specific actions designed to achieve some future behaviour. However, learning outcome is more of curriculum content than measurement. Researchers have confusedly used these terms and this is not restricted to any particular group. This is due to the fact that literature has not provided a definite clarification on the difference existing among the terms. In the context of this study, academic performance and academic achievement will be used interchangeably, and it will be measured from the students' scores in a standardized test questions extracted from past SSCE question papers within the SS2 scheme of work as prescribed by Nigerian Educational Research and Development Council (NERDC, 2008) administered to the participating students. Senior Secondary School is a sub-set of the 9-3-4 System of Education

[Universal Basic Education (UBE)] which took off in 2006, has the first nine years of basic and compulsory education up to the JSS3 level (six years for primary school and three years in junior secondary school), three years in the senior secondary school, and four years in the tertiary institutions. The senior secondary school students therefore are the students that are currently in the senior secondary schools from SS1 to SS3. The senior secondary school students have successfully completed their basic 9 which is capped with at least a pass in the Junior School Certificate Examination. The senior secondary school students are between the ages of 15 and 18 years, although there might be some exceptional cases of younger or older students.

Studies have shown that there is a link between parenting style and academic performance. Seth and Ghormode (2013) opine that the most significant influence on child is his or her parents, and that psychologists and educationists are of the opinion that child rearing practices have the direct bearing on the educational performance of children.

In this study, the academic performance of students in mathematics is the dependent variable since its outcome depends directly on the type of parenting style under study.

Concept of Mathematics:

According to Wikipedia in English, in the March 2014 version cited in Ziegler and Loos (2014), mathematics is the abstract study of topics such as quantity (numbers), structure, space, and change. The word “mathematics” comes from ancient Greek word mathema, meaning “that which is learnt”, “what one gets to know”, hence also “study” and “science”. Aristotle defined mathematics as “the science of quantity”, and this definition prevailed until the 18th century. Starting in the 19th century, when the study of mathematics increased in rigor and began to address abstract topics such as group theory and projective geometry, which have no clear-cut relation to quantity and measurement, mathematicians and philosophers began to propose variety of new definitions. Today, no consensus on the definition of mathematics prevails, even among professionals. There is not even a consensus on whether mathematics is art or science. It was the German mathematician Carl Friedrich that first referred to mathematics as “the Queen of Sciences”. Some professionals simply define mathematics as “what mathematicians do”. The three broad types of definition of mathematics are: logicist, intuitionist, and formalist, each reflecting a different philosophical school of thought. Some of the early definitions of mathematics in terms of logic include Benjamin Pierce (1870) cited in Zeigler and Loos (2014) who defined mathematics as the science that draws necessary conclusions. In the “Principia Mathematica”, Bertrand Russell and Alfred North Whitehead advanced the philosophical program known as logicism, and attempted to prove that all mathematical concepts, statements, and principles can be defined and proved entirely in terms of symbolic logic. In the same vein, Russell (1903) cited in Zeigler and Loos (2014) asserts that “all mathematics is symbolic logic”.

Conversely, the intuitionist definitions of mathematics developed from philosophical mathematician Brouwer (1981) who identified mathematics with certain mental phenomena. An example of intuitionist definition is “Mathematics is the mental activity which consists in carrying out constructs one after the other”. A peculiarity of intuitionism is that it rejects some mathematical ideas considered valid according to other definitions.

The formalist definitions on the other hand identify mathematics with its symbols and the rules for operating them. Curry (1930) cited in Zeigler and Loos (2014) defined mathematics simply as “the science of formal systems”. A formal system is a set of symbols or tokens.

Generally, mathematics can be divided into two: Pure mathematics and Applied mathematics. Pure mathematics includes various fields like; quantity, structure, space and change. Applied

mathematics deals with mathematical methods that are typically used in science, engineering, business, and industry. Ziegler and Loos (2014) posit that the most diplomatic way is to acknowledge that there are “many mathematics”. Tao (2007) cited in Ziegler and Loos (2014) gave an open list of mathematics that is/are good for different purposes – from “problem-solving mathematics” and “useful mathematics” to “definitive mathematics”.

Although the intrinsic and extrinsic nature of mathematics may not be very clear to all the parents, the parents should be able to provide the necessary support, motivation and enabling environment that will enable their children and wards strive better for enhanced academic performance in mathematics. The children learn that first sums from their homes.

2.2 Theoretical Framework

Several researchers had successfully propounded theories that have directly or indirectly linked parenting and parenting styles to students’ academic performance. These theories include Parenting Styles Theory (Pillar Theory), Attachment Theory, Social Learning Theory, Piaget’s Theory amongst others. This study briefly assessed these theories and their impact on the subject of study was adequately placed in the right perspective.

3.0 METHODOLOGY

The design for this study is correlational design. In this study, the “academic performance” of the students was taken as the dependent variable, while the different “parenting styles (authoritative, authoritarian, permissive and uninvolved)” were taken as the independent variables. Individuals who possess the different variables to be studied were identified and studied. Tests on the variables being studied were given to the group(s) of people who have the different variables. The correlation of their scores in the two variables was then estimated. Data was collected from all public secondary schools in Owerri Municipal to determine the total number of students that are raised with a particular kind of parenting style and their corresponding achievement in mathematics, in other to investigate the relationship between parenting styles and academic performance in mathematics.

This study was carried out in twelve selected public secondary schools in Owerri Municipal Council, Imo State, Nigeria – eleven of which are state owned and one is Federal owned. Owerri Municipal Local Government Area has its headquarters in the city of Owerri along Douglas Road. It has an area of 58km² and a population of 127,213 in 2006 (NPC, 2006). Owerri Municipal Local Government is sandwiched between Owerri West and Owerri North Local Government Areas.

The population of this study comprised 4843 Senior Secondary School 2 (SS 2) students of the twelve selected public secondary schools in Owerri Municipal Local Council, Imo State, Nigeria. There are eleven state owned and one federal owned secondary schools in Owerri Municipal Local Council Area. The state owned schools include: Comprehensive Development School, Owerri City School, Urban Development Secondary School, Emmanuel College, Government Technical School, Boys Model Secondary School, Government Secondary School, Girls Secondary School, Imo Girls College, Young Scientists College and Continue Education centre (which is only for extra moral class). The federal owned secondary school is Federal Government Girls College (FGGC), Owerri.

The total number of students in the selected public secondary school in Owerri Municipal Local Government Area is **27,294**; the total number of senior secondary school students is **12,299**; and the total number of SS 2 students is **4,843**. Since the scope of this study will be targeted at the SS2

students, the population of this study was **4,843** SS2 students. 483 students were selected using simple random balloting without replacement.

The instrument for data collection for this study was a Parenting Perception Styles Questionnaire (PPSQ). This questionnaire was adapted from Parental Authority Questionnaire (PAQ) by Buri (1991). The Parental Authority Questionnaire (PAQ) by Buri (1991) was only used to measure the authoritative, authoritarian and permissive styles of parenting as perceived by students. The PAQ was amended by the researcher to accommodate the uninvolved parenting style and used to collect data for this study. This questionnaire contained twenty-seven (27) items or self-reporting questions with responses which were coded numerically to enable quantitative analysis of the data obtained from the field. The research instrument was ordered into three parts (A, B and C). Part 'A' comprised three (3) background information items on students. Question 1 was used to determine the sex of students and was coded as 1=Male and 2= Female. Question 2 dealt with the age of students and was coded as 1=14-15, 2=16-17, 3=18-19 and 4=20 and over, and Question 3 was on academic level of students and was coded 1=SS1, 2=SS2 and 3=SS3.

Part 'B' constituted 24 items selected sub-divided into the four sections representing the four parenting styles, reviewed and contextualized from carefully designed items used in prior research and some designed by the researcher. Section 1 (parenting style characteristics 1) represents the authoritative parenting style, section 2 (parenting style characteristics 2) represents the authoritarian parenting style, section 3 (parenting style characteristics 3) represents the permissive parenting style, section 4 (parenting style characteristics 4) represents the uninvolved parenting style. Each section had questionnaire items that the respondents were expected to answer by ticking the appropriate box. The questionnaire was prepared using a Likert - Scale format which forms the boxes to be ticked by the respondents. Strongly Agree (SA= 4 points), Agree (A= 3 points), Disagree (D= 2 points) and Strongly Disagree (SD= 1 point).

Finally, section 'C' of the questionnaire which consists of a standardized test of 40 objective mathematics questions extracted from past WAEC and NECO Senior School Certificate examinations were administered to the students to test their performance in mathematics. These questions were carefully selected to fall within the scheme of work for SS2. The performance of the students was graded using the following standard: 0-39 (poor), 40-64 (average), 65-100 (good).

Content and face validity which is the extent to which the document or object which is the source of information looks genuine was established. The reliability of the questionnaire established using Cronbach Alpha Reliability Technique for internal consistency was **0.82**, while the reliability coefficient of the achievement test was **0.73**. Cronbach alpha is an index of internal consistency used to qualify and determine the reliability of an instrument. It is suitable for estimating the internal consistency of Likert type scale such as: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). Scores ascribed to the scales could be 4, 3, 2, and 1 respectively.

This was done by subjecting thirty respondents in a pilot study to a test of reliability using the Cronbach alpha. The basis for judgment was between zero and one (0-1). At 0.82 and 0.73, the instrument for data collection was very reliable.

The data collection process was done in two phases. In the first phase, a well-structured questionnaire with pre-codes were administered. The selected students in SS2 from each of the cluster of classes that were randomly selected were made to occupy the front rows to avoid interference and distractions, and made to undertake the study under the supervision of the research assistants. The second phase of the data collection process involved gathering data on the academic performance of the students in mathematics. The section 'C' of the questionnaire contained forty

(40) standardized objective test questions. The students were asked to solve and answer the questions by shading the appropriate option on the question paper. The various data collected in order to achieve the overall objective of the study were then analysed.

Two methods of data analyses were employed in this research. They are descriptive analysis using mean, percentage, and pie chart; and the Pearson Product Moment Correlation Coefficient.

The criterion for judgment of section 'B' of the questionnaire was based on Likert scale of categories of SA, A, D and SD with nominal values of 4, 3, 2, and 1 respectively. These items are so structured such that an individual student could score highest in just one of the sections in Part B which by implication, stands for the parenting style with which he/she is brought up. The students with the same parenting style are grouped together and their total recorded.

Section 'C' of the instrument which is the achievement test of individual student was scored and graded per 100%. The performance of the students was graded using the following standards: 0-39 (poor), 40-64 (average), 65-100 (good). The scores for the parenting style of each student were recorded with their corresponding score in the mathematics achievement test and their mean score calculated and recorded.

Pearson Product Moment Correlation Coefficient was then used to calculate the correlation coefficient between each parenting style and its corresponding achievement score. The corresponding table value for each of the correlation coefficient is also calculated with P-value of 0.05. When the calculated value was greater than the table value, there was a significant relationship between the variables in the correlation, when the calculated value was less than the table value, we had non-significant relationship. Where the calculated value was equal to the table value, the investigation was inconclusive.

4.0 DATA PRESENTATION AND ANALYSIS

A total of 483 copies of questionnaire containing 25 questions were distributed. 464 copies were returned showing a response rate of 96.1%. The questionnaire along with the standardized objective mathematics test questions was administered personally to the students who filled it and returned same through the help of their class teachers. The data from the questionnaire are summarized, presented, analyzed and discussed in this chapter.

Table 1: Questionnaire administration and response rate

Schools	No of copies of questionnaire issued	No of returned questionnaire	% response
Comp. Dev. Sec. School.	52	50	96.2
Owerri City Sch.	95	90	94.7
Urban Dev. Sec. School	34	33	97.1
Emmanuel College	24	24	100
Govt. Technical College	43	42	97.7
Boys Model Sec School	27	27	100
Govt. Sec. Sch.	70	60	85.7
Girls Sec. Sch. Ikenegbu	75	75	100
Imo Girls College	16	16	100
Young Scientist College	7	7	100
Federal Govt. Girls College	40	40	100
Total	483	464	96.1

Source- Author's Fieldwork (August 2024)

Analysis of Objectives

Objective 1 – To identify the parenting styles of the parents of the Senior Secondary School Students in Owerri Municipal.

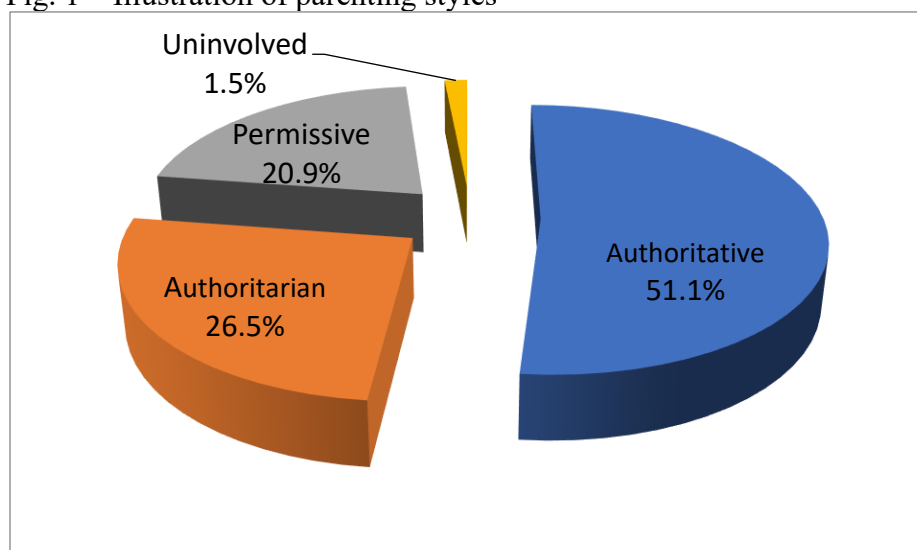
The summary of the parenting styles exhibited by the parents of the sampled secondary school students in Owerri municipal showed that 237 parents exhibited authoritative parenting style representing 51.1%; 123 parents exhibited authoritarian parenting style representing 26.5%; 97 parents exhibited permissive parenting style representing 20.9%; while 7 parents exhibited uninvolved parenting style representing 1.5%. The analysis of the data from the responses of the students is presented in the tables below.

Table 2: Presentation of the different parenting styles

Parenting Styles	Frequency	Percentage (%)
Authoritative	237	51.1
Authoritarian	123	26.5
Permissive	97	20.9
Uninvolved	7	1.5
Total	464	100

Source- Author's Fieldwork (August 2024)

Fig. 1 – Illustration of parenting styles



Source- Author's Fieldwork (August 2024)

Objective 2 – To determine the academic performance of the Senior Secondary School Students in Mathematics in Owerri Municipal.

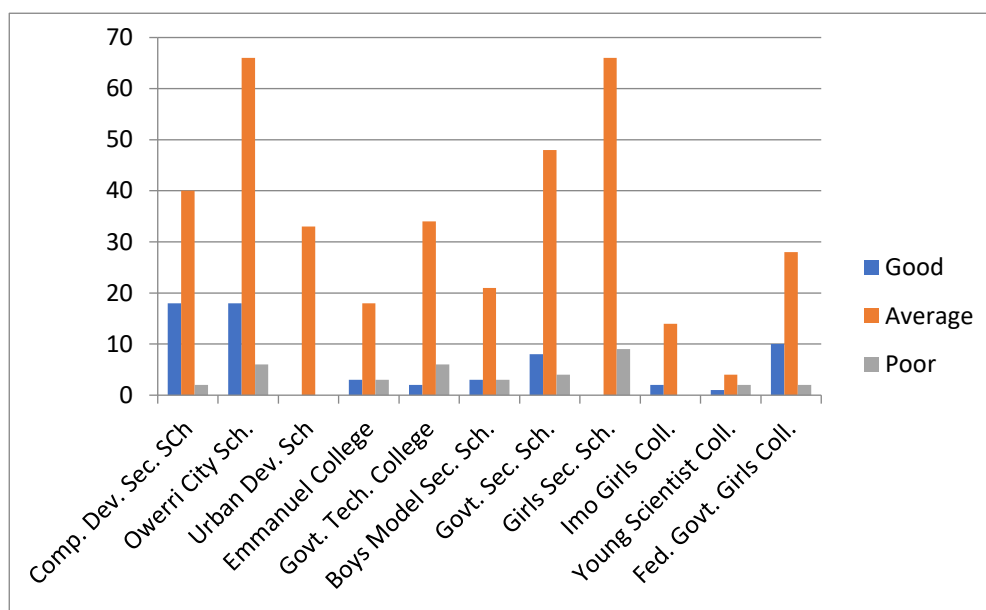
The data collected showed that 11.9% of the students were rated 'good', 80.2% were rated average, and 7.9% were rated 'poor' (see table 3). The mean score for each parenting style and their corresponding mean mathematics scores were also calculated. The following mean scores for mathematics were observed and presented: authoritative – 54.6%; authoritarian – 53.3%; permissive – 54.6%; and uninvolved – 49.0% (see table 4).

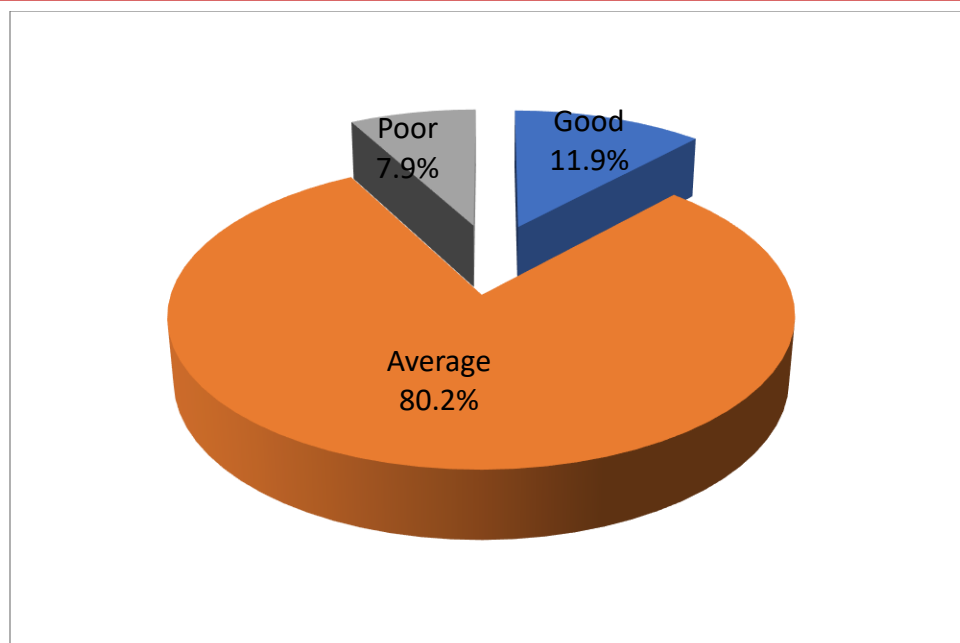
Table 3: Academic performance of Students in mathematics per School

Schools	Good (65-100)%	Average (40-64)%	Poor (0-39)%	Total
Comp. Dev. Secondary School	8	40	2	50
Owerri City School	18	66	6	90
Urban Dev. School	-	33	-	33
Emmanuel College	3	18	3	24
Govt. Tech. College	2	34	6	42
Boys Model Secondary School	3	21	3	27
Govt. Secondary School	8	48	4	60
Girls Secondary School, Ikenegbu	-	66	9	75
Imo Girls College	2	14	-	16
Young Scientist College	1	4	2	7
Fed. Govt. Girls College	10	28	2	40
Total	55	372	37	464
Percentage	11.9	80.2	7.9	100

Source- Author's Fieldwork (August 2024)

Fig. 2 – Illustration of academic performance of students in mathematics





Source: Author's Field Work (August 2024)

Table 4: Parenting Styles Mean Scores in Mathematics

S/N	Parenting styles	Number of Students	Mean Parenting Scores (X)	Mean Maths Test Score (Y)
1	Authoritative	237	39.5	54.6
2	Authoritarian	123	37.3	53.2
3	Permissive	97	40.5	54.6
4	Uninvolved	7	38.4	49

Test of Hypotheses

Ho1 – There is no significant relationship between authoritative parenting style and academic performance in mathematics.

Table 5: Pearson r on authoritative parenting style and their academic performance in mathematics

Source of variation	N	Parenting Style r	Academic Performance r	Remark
Authoritative Parenting	237	1.000	- 0.046	VLNR
Academic Performance	237	- 0.046	1.000	

VLNR = Very Low Negative Relationship

Table 5 revealed that there is very low negative relationship of -0.046 between the authoritative parenting style and academic performance of senior secondary school students in mathematics.

Table 6: Showing relationship between authoritative parenting style and academic performance in mathematics.

N	Cal r	df	P value	Tab. r (P<0.05)	Remarks
237	- 0.046	235	0.05	0.128	non significant

Table 9 indicates that at 0.05 level of significance and 235 degree of freedom, the calculated $r = -0.046$ and a tabulated $r = 0.128$. Since the calculated coefficient is less than the tabulated coefficient, the first null hypothesis is accepted. Thus, there is no significant relationship between authoritative parenting style and academic performance in mathematics of senior secondary school students. See appendix 4 for details of the scores and calculations.

H₀₂ – There is no significant relationship between authoritarian parenting style and academic performance in mathematics

Table 7: Pearson r on authoritarian parenting style and their academic performance in mathematics

Source of variation	N	Parenting Style r	Academic Performance r	Remark
Authoritarian Parenting	123	1.000	- 0.052	VLNR
Academic Performance	123	- 0.052	1.000	

VLNR = Very Low Negative Relationship

Table 5 revealed that there is very low negative relation of -0.052 between the authoritarian parenting style and academic performance of senior secondary school students in mathematics.

Table 8: Showing relationship between authoritarian parenting style and academic performance in mathematics.

N	Cal R	df	P value	Tab. r (P<0.05)	Remark
123	- 0.052	121	0.05	0.177	non significant

Table 10 indicates that at 0.05 level of significance and 123 degree of freedom, the calculated $r = -0.052$ and a tabulated $r = 0.177$. Since the calculated coefficient is less than the tabulated coefficient, the first null hypothesis is accepted. Thus, there is no significant relationship between authoritarian parenting style and academic performance in mathematics of senior secondary school students. See appendix 4 for details of the scores and calculations.

H₀₃ – There is no significant relationship between permissive parenting style and academic performance in mathematics.

Table 9: Pearson r on permissive parenting style and their academic performance in mathematics

Source of variation	N	Parenting Style r	Academic Performance r	Remark
Permissive Parenting	97	1.000	- 0.0004	VLNR
Academic Performance	97	- 0.0004	1.000	

VLNR = Very Low Negative Relationship

Table 5 revealed that there is very low negative relation of -0.0004 between the permissive parenting style and academic performance of senior secondary school students in mathematics.

Table 10: Showing relationship between permissive parenting style and academic performance in mathematics.

N	Cal R	df	P value	Tab. r (P<0.05)	Remark
97	- 0.0004	95	0.05	0.200	non significant

Table 10 indicates that at 0.05 level of significance and 123 degree of freedom, the calculated $r = -0.0004$ and a tabulated $r = 0.200$. Since the calculated coefficient is less than the tabulated coefficient, the third null hypothesis is accepted. Thus, there is no significant relationship between permissive parenting style and academic performance in mathematics of senior secondary school students. See appendix 4 for details of the scores and calculations.

H₀₄ – There is no significant relationship between uninvolved parenting style and academic performance in mathematics

Table 11: Pearson r on uninvolved parenting style and their academic performance in mathematics

Source of variation	N	Parenting Style r	Academic Performance r	Remark
Uninvolved Parenting	7	1.000	0.577	HPR
Academic Performance	7	0.577	1.000	

HPR = High Positive Relationship

Table 5 revealed that there is a high positive relationship of 0.577 between the uninvolved parenting style and academic performance of senior secondary school students in mathematics.

Table 12: Showing relationship between uninvolved parenting style and academic performance in mathematics.

N	Cal R	df	P value	Tab. r (P<0.05)	Remark
7	0.577	6	0.05	0.800	non significant

Table 12 indicates that at 0.05 level of significance and 123 degree of freedom, the calculated $r = -0.577$ and a tabulated $r = 0.800$. Since the calculated coefficient is less than the tabulated coefficient, the fourth null hypothesis is accepted. Thus, there is no significant relationship between uninvolved parenting style and academic performance in mathematics of senior secondary school students. See appendix 4 for details of the scores and calculations.

Summary of Findings

From the analysis, the following findings were made.

1. There is a low negative relationship of -0.046 between authoritative parenting style and academic performance in mathematics of senior secondary school students.
2. There is a low negative relationship of -0.052 between authoritarian parenting style and academic performance in mathematics of senior secondary school students.
3. There is a low negative relationship of -0.0004 between permissive parenting style and academic performance in mathematics of senior secondary school students.

4. There is a high positive relationship of 0.577 between uninvolved parenting style and academic performance in mathematics of senior secondary school students.
5. There is no significant relationship between authoritative parenting style and academic performance in mathematics of senior secondary school students.
6. There is no significant relationship between authoritarian parenting style and academic performance in mathematics of senior secondary school students.
7. There is no significant relationship between permissive parenting style and academic performance in mathematics of senior secondary school students.
8. There is no significant relationship between uninvolved parenting style and academic performance in mathematics of senior secondary school students.

5.0 DISCUSSIONS OF FINDINGS, CONCLUSION, RECOMMENDATIONS.

5.1 Discussions of Findings

The findings of this research are summarized as follows:

Authoritative parenting was the most common with 237 students, authoritative 123, permissive 97, while the uninvolved parenting style was the least common with 7 students in the course of this study. This shows that most parents tend towards the authoritative parenting style as their parenting option. In academic performance of students in mathematics, it was observed that students with authoritative parenting style had a mean score of 54.6%, authoritarian had 53.2%, permissive 54.6%, and uninvolved 49%.

It was observed that there is a low negative relationship between each of the authoritative; authoritarian; and permissive parenting styles and academic performance of senior secondary school students in mathematics. This implies that a tilt towards any of the aforementioned parenting style above would not necessarily increase the academic performance of the student in mathematics and vice versa.

The four null hypotheses tested were accepted which conclude that there is no significant relationship between these parenting styles and academic performance in mathematics. This finding partly agrees with the findings of Kramer (2017) which concluded that authoritative parenting has no relationship with academic achievement of students in mathematics which is one of the variables in the parenting styles being studied.

Only uninvolved parenting style showed a positive correlation between it and academic performance of the students in mathematics, but there was still no significant relationship between uninvolved parenting style and academic performance in mathematics when null hypothesis 4 was tested.

Since the parenting style adopted does not necessarily translate into higher academic performance in mathematics, there may be other factors that could improve students' academic performance apart from effective and efficient parenting. These factors may include self-determination, peer influence, methods of teaching, the content and personality of the teacher.

Majority of the students showed a lot of indifference when answering the mathematics test questions given to them in the course of this study owing to the negative notion attributed to mathematics. This may also be attributed to the fact that the students were not pre-informed and so may not be prepared for the test. This could have a direct impact on their academic performance in mathematics in the test which may have affected the study.

5.2 Conclusion

The main purpose of this study was to establish the relationship between parenting styles and academic performance of students in mathematics. Specifically, the study sought to: determine the academic performance of authoritative parenting style senior secondary school students in mathematics; determine the academic performance of authoritarian parenting style senior secondary school students in mathematics; determine the academic performance of permissive parenting style senior secondary school students in mathematics; and determine the academic performance of uninvolved parenting style senior secondary school students in mathematics. From these objectives, hypotheses were developed to achieve the objectives.

The study was carried out in the eleven public senior secondary school students in Owerri Municipal Council in Imo State. At the end of the study, all the objectives were met and the hypotheses tested.

Based on the findings, this study concludes with the proposition that parenting styles have no significant relationship with academic performance of SS2 students in Owerri Municipal, Imo State. This could imply that there are other factors that could affect students' performance in mathematics other than the parenting styles.

There are extraneous variables identified in the course of this study that could affect the students' achievement in mathematics. These include; personal interest, peer influence, methods of teaching, the content and personality of the teacher.

5.3 Recommendations

The following recommendations were made based on the findings of the study.

1. The stakeholders should not place too high importance on the relationship between parenting style and academic performance in mathematics with regards to increasing academic performance in mathematics senior secondary school students in Owerri Municipal.
2. The parents should think out better ways of improving academic performance of their children and wards in mathematics other than parenting.
3. There should be a proper collaboration between the parents and the teachers of their children for strategies on ways to improve the academic performance of their children in mathematics.

There should be a proper interface between the parents and the school authorities through PTA meetings and other means on ways to improve the students' academic performance in mathematics

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