

Interest and Classroom Environment as Correlates of Pupils' Academic Achievement in English Language and Mathematics in Abia State

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Received: June 9, 2025

Accepted: August 4, 2025

Online Published: October 20, 2025

doi:10.11114/ijce.v9i1.8072

URL: <https://doi.org/10.11114/ijce.v9i1.8072>

Abstract

The main aim of the paper was to examine interest and classroom environment as correlates of academic achievement in mathematics and English Language of pupils in Abia State. The research adopted a correlational research design. Six research questions and six null hypotheses guided the study. The population consists of 27, 211 primary 3 pupils in Abia State. Simple random sampling and intact class technique were used to select a sample of 1,368 pupils. Three research instruments: - Pupils' Interest Scale (PIS); Classroom Environment Questionnaire (CEQ); and Pupils Cumulative scores in English language and Mathematics were used. Simple linear regression was used to determine the relationship between the variables, while Analysis of Variance (ANOVA) was used to test the hypotheses at 0.05 level of significance and percentage scores used for pupils' achievement in English language and Mathematics. The findings of the study include: Pupils' interest has weak positive relationship with their academic achievement in English language and Mathematics; classroom physical environment has moderate positive relationship with pupils' academic achievement in English Language and strong relationship with AA in Mathematics; classroom social environment has strong positive relationship with pupils' academic achievement in English language and very strong relationship with AA in mathematics. Also, there is significant relationship between pupils' interest and their academic achievement in English language [$F(1, 1367) = 124.168, p = .000 < 0.05$]; no significant relationship between classroom physical environment and pupils' academic achievement in Mathematics, [$F(1, 1367) = .570, p = .450 > 0.05$]. Among the recommendations were: teachers and parents should identify pupils' interest early so as to know the area for intervention or encouragement to improve their academic achievement; government should ensure that the classroom physical environment is conducive for teaching and learning.

Keywords: interest, classroom environment, academic achievement, English language, mathematics, primary pupils

1. Background of the Study

Education is an indispensable instrument for human development. Amadioha and Akor (2018) described education as the process through which children, or even adults are helped to cultivate and grow their abilities, attitudes, values and other forms of behavioural attributes aimed at changing the individual to contribute to their well-being and the society. The Federal Republic of Nigeria (FRN) (2014) enumerated the various stages of education to include: early childhood education, basic education, secondary education, mass literacy, adult and non-formal education, science education, technical and vocational education, tertiary education, and open and distance education.

Basic education is the foundation for the entire education system. It is the education offered to children aged between 6 and 14 years. FRN (2014,p13) stated that basic education shall be of 9 years' duration comprising 6 years of primary school education (Basics 1-6) and 3 years of junior secondary school education (Basics 7-9). Also, it includes adult and non-formal education programmes of primary and junior secondary education levels for adult and out-of-school youths, nomadic, migrant children, almajiris (migrant muslim children who left their home towns to other places for the purpose of getting sound Islamic Qur'anic education; now turned to beggars and labourers for their master-teacher) and other vulnerable and excluded groups (Federal Ministry of Education, FMOE 2009).

Academic Achievement (AA) is a multifaceted concept. According to Steinmay et al. (2014), it represents outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in an instructional environment. It also predicts pupils' fitness of continuing in the school system through recognized assessment measures. Academic achievement is commonly determined by examination, test, assignment, continuous assessment (C.A.),

on-the-spot assessment and others. Asuru (2008) stated that these measures are used to assess pupils' ability, performance or achievement in a given task or subject. Oluwole (2008) is of the view that the poor level of achievement in many subject areas may be due to poor foundation in English language and Mathematics at the basic education level.

In primary education, English Language and Mathematics are among the core subjects. English Language is the major language of communication in Nigeria apart from the other three major indigenous languages. Mathematics, on the other hand, deals with numeracy and calculations. Simple mathematical operations involving adding, subtracting or even sharing of items and simple expression in English Language are not only useful to determine academic achievement but also needed for everyday social interaction.

Poor academic achievement in English Language and Mathematics is not only frustrating to the pupils who may be hindered from progressing in their educational career, but also to the parents for waste of resources in the payment of fees, other procurements for pupils' schooling and to the government in the provision of facilities, policies formulation and other services. It has grave repercussions in terms of dearth of quality manpower in all spheres of the economy and development in the future. Information available from the Abia State Ministry of Education unveils that there is steady decline in the achievement of pupils in the primary school leaving certificate examination, (Abia State Basic Universal Education Board (ASUBEB) (2019). Also, from the researcher's closed monitored observation, many pupils cannot respond to simple questions like "what is your name? where are you going?" and others. Similarly, gross inability to perform simple mathematical operations of addition, subtraction, division and multiplication of figures is on an increase among pupils. This is simply an expression of lack of fundamental literacy and numeracy knowledge that even affects pupils' academic achievement. Oluwole (2008) reiterated that poor achievement among pupils has persisted in many subject areas such as Mathematics and English language.

Based on recurring poor academic achievement of pupils, teachers, administrators, and researchers are interested in exploring factors influencing academic achievement especially in the core subjects. Many factors like teachers' qualification, socio-economic status, parental educational background, family size among others have been considered without better outcomes. This lack avails the opportunity for the study to ask: could pupils' interest and the classroom environment influence their academic achievement?

Interest is not only the foundation of all activities for every human person, but also for continuation and sustenance of activities. In education, it is a driving force for pupils' availability, participation and achievements. According to Goulart and Bedi (2011), interest is an intrinsic motivation that spurs an individual to engage in activities for its own sake or out of enthusiasm in the activity. It is associated with curiosity, attention and concentration that endear pupils to go to school, learn, participate in school activities, get better achievements in the school activities and other functions. Interest can be aroused through emotion and situation.

Emotional interest is prompted by feeling. It is a mere preference for something or an activity without any convincing reason (Harackiewicz, et al. 2016). These feelings may not be reasonable, but can later develop to be reasonable (cognitive interest). Cognitive interest is the inclination towards activities with conviction and direction. The selection of activities such as classroom activities are anchored by reasons borne on expected outcomes in an academic situation/environment.

Environment is an indispensable factor for teaching and learning activities. Chukwu (2015) defined environment as the sum total of all surroundings in which an organism lives, operates and develops. It consists of everything within a surrounding that includes: light, air, water, soil and other living organisms, circumstances, or conditions (Emenike 2010). Environment provides resources that help in supporting life on earth (natural and manmade environments). Specifically, in schools, environment includes resources that help in facilitating teaching and learning activities in the classroom. Classroom environment comprises the physical classroom facilities and classroom social environment (Wambua, et al., 2018).

Physical environment refers to physical characteristics of the surroundings. It comprises all the physical objects present, within and outside the classroom, that include classroom block, writing board, furniture, lightings, projector, books, computers among others (Malik, & Rizvi 2018). The classroom is a 'silent curriculum' because it stimulates classroom activities. Suleman, et al. (2014) accurately noted that a classroom setting that does not support an effective teaching and learning experience visible leads to exhaustion and irritation among pupils.

Visual factor refers to the quality of lighting inside the classroom. It is achieved through either artificial lighting (electricity) or natural light (sun) that illuminates the classroom. Electrifying the classroom adds comfort through the installation of fans, air conditioners, warmers, among others, which adds to the thermal comfort of the classroom. Chatzidiakou, et al. (2014) emphasized that classroom temperatures should not drift above the range of 20 °C to 22 °C in the winter season and 22 °C to 24 °C in the summer. Concerning health, higher levels of carbon dioxide (CO₂) inside the classroom have been linked with an amplified possibility of transmissible disease, asthmatic signs, absenteeism, and

decreased academic achievement of pupils. Some of the installations or materials used can be a source of noise pollution or sound.

Acoustics in the classroom is about sound or noise production. Noise and sound can be produced by some materials used in construction, strings in a violin, vocal cords, moving vehicles, machines, fallen trees, and even class size.

Classroom size and the number of pupils inside the class affect communication. Overcrowded classrooms are a consequence of pupils' enrollments surpassing the capacity of the classrooms. The classroom capacity is not only about room size, but also requires commensurate instructional materials for teaching and learning to take place. The usage of instructional materials (IM) during instruction encourages pupils' participation, interaction, and relationships.

Classroom active participation and relationships that promote learning are major aspects of the classroom social environment. Classroom social environment refers to the social relationships between pupils and pupils, between pupils and teachers, and between pupils and learning resources (Cava, et al., 2010). Relationship in the classroom can be achieved through teacher support, mutual respect, and pupils' collaborations in task-oriented exchanges.

At the base of the classroom social environment for pupils to learn is teachers' emotional and instrumental support. Teachers' emotional support and instrumental support refer to the ability to cultivate strong and positive connections with pupils, fostering their autonomy, skills, and emotional as well as social development. (Schenke, et al., 2017). This support in an adequate environment promotes teaching and learning.

Careful examination of numerous primary schools revealed that the physical environment is not supportive of effective teaching and learning. Chan (2006) noted that numerous school structures are outdated. This physical environment does not arouse pupils' interest or is conducive to learning activities. The collaboration of the classroom settings and interest has a huge correlation to the academic achievement of pupils. Jayanthi, et al. (2014), demonstrated that both classroom environment and pupils' interest promote attention, recall, task persistence, effort, and academic achievement. Lack of interest in a subject discourages pupils from going to school, staying in class, and working hard to achieve good grades. Adeyemi and Adeyemi (2014) pointed out that as pupils become disengaged from the classroom tasks, the rate of failure tends to rise, leading to an increase in low academic achievement.

The aim of the study is therefore to examine interest and classroom environment as correlates of pupils' academic achievement in English Language and Mathematics in Abia State. There seems to be no current evidence to show a correlation between interest, classroom environment, and the academic achievement of pupils in Abia State.

Statement of the Problem

Commercial activities and subsistence agriculture in Abia State are so pervading that even children's interest is in how to make money. This environment has a great influence on pupils' interest, and academic achievements.

Pupils' interest is measured by the level of concentration, commitment, attendance at school, and determination to learn. As a result of environmental influence, pupils' interest is divided between active participation in commerce, subsistent agriculture, and active participation in classroom activities.

Notwithstanding, pupils' interest can be directed or redirected by the classroom environment. Pupils' inclination can be attracted and sustained based on the quality of the environment consisting of physical facilities (school building, appropriate furniture, lighting, ventilation, materials, decorations) and social relationships (care and support, and peer relationships). The condition of classrooms in Abia State primary schools is attracting the attention of many people because many of the buildings and equipment are outdated and not working properly. Also, social interaction is grossly hindered due to a limited number of teachers, resources, and facilities, affecting teachers' performance and pupils' academic achievement.

Poor academic achievement of pupils, especially in the core subjects of English language and Mathematics, is a major concern to stakeholders in education. Pupils' poor knowledge and inability to express themselves in English Language and gross inability to perform simple mathematical operations of adding and subtracting figures, are on the increase in daily life.

Further, the deteriorating rate of pupils' academic achievement, demonstrated by their scores in English language and mathematics, demands urgent attention aimed at improving pupils' academic achievement. Hence, the study seeks to examine interest and classroom environment as correlates of pupils' academic achievement in English language and Mathematics at Abia State.

Research Questions

The following research questions guided the study:

1. How does pupils' interest correlate with their academic achievement in English Language?
2. What is the relationship between pupils' interest and their academic achievement in Mathematics?

3. What is the relationship between classroom physical environment and pupils' academic achievement in English Language?
4. How does the physical environment of the classroom influence pupils' academic achievement in Mathematics?
5. How does the social environment in the classroom relate to pupils' academic achievement in English Language?
6. What is the relationship between classroom social environment and pupils' academic achievement in Mathematics?

Hypotheses

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

- Ho₁. There is no significant relationship between pupils' interest and their academic achievement in English language.
- Ho₂. There is no significant relationship between pupils' interest and their academic achievement in Mathematics.
- Ho₃. There is no significant relationship between the classroom's physical environment and pupils' academic achievement in English Language.
- Ho₄. There is no significant relationship between the classroom's physical environment and pupils' academic achievement in Mathematics.
- Ho₅. There is no significant relationship between classroom social environment and pupils' academic achievement in English Language.
- Ho₆. There is no significant relationship between classroom social environment and pupils' academic achievement in Mathematics.

2. Review of Literature

Concept of Primary Education

Primary education represents the official stage that establishes the foundation for further learning. Sen (2010) emphasized that primary education serves as the essential base for a child's educational journey, meaning that all subsequent levels of education hinge upon it. True to its name, it is the foremost step and necessitates a robust base not only for itself but also for all educational levels that follow. According to FRN (2014, p. 11), primary education is defined as the "instruction provided in learning institutions for children between the ages of 6 to 12". It marks the initial phase of education, focusing on creating, instituting, and presenting opportunities for children to achieve balanced development in cognitive, emotional, and psychomotor domains, regardless of their age, gender, or nationality. Primary education serves as the first setting where formal education or literacy is introduced to children. According to the United Nations International Children's Emergency Fund (UNICEF) (2012), offering children primary education yields numerous benefits, including reducing poverty, lowering child mortality rates, promoting gender equality, and enhancing environmental awareness.

The goals of primary education, as outlined by FRN (2014, p. 11), aim to instill enduring literacy and numeracy; fostering effective communication skills which seek to establish a solid foundation for scientific inquiry, critical thinking, and reflective practices; aspiring to embed social and moral principles within children; nurturing adaptability to evolving conditions, and equipping them with practical life skills to enable them to thrive within society. These objectives will also aid in preparing the child for further educational pursuits, as well as vocational training relevant to local trades and crafts. Primary education is, according to the constitution of DRN (1999), free, universal, and compulsory for all school-age children. The goals of primary education can be achieved through a curriculum implementation, provision of educational services, employing hands-on, exploratory, and experimental teaching methods, utilizing the local language as the instruction medium in the first three years and prioritizing teacher professional training to achieve these educational objectives (FRN, 2014).

The establishment of the Universal Basic Education (UBE) initiative represents a significant effort by the Federal Government to advance primary education. The rationale is that the quality of outcomes from primary education will generate future professionals—technologists, engineers, teachers, and lawyers. Like many other developing nations, the Federal Government of Nigeria has made various efforts to improve and sustain high standards of primary education.

One of the most pressing challenges inhibiting the quality of education in Nigeria is the lack of adequate funding from federal, state, and local governments, as financial support has often been contingent on conditions set by International Financial Institutions (IFIs). It has been observed that the total national investment in education is difficult to calculate since the educational spending of different states cannot be assessed against the UNESCO guideline of 26% of national budgets (Sarki & Madori 2018).

Pupils' Interest and Classroom Environment

Interest plays a significant role in driving learning and academic endeavors. Paul (2014) described it as a state of psychological engagement, as well as a tendency to repeatedly participate in specific activities, events, or objects over time. In education, interest can elevate struggling learners and enhance the performance of high achievers. Silvia (2008) pointed out that interest is strongly linked to intrinsic motivation, encouraging individuals to engage in activities or experiences without any external pressure. As an inherent driving force, it sharply directs an individual's focus, prompting them to concentrate on specific matters while ignoring distractions. Typhoon International Corp (2004, p. 662) described interest as a form of attention infused with concern, enthusiastic curiosity, and the capacity to maintain focus on something for a duration. It fosters persistence, self-discipline, concentration, and an intense focus on tasks for extended periods. Kpolovie (2012) noted that when a person is genuinely interested in information, they pay more attention, process the information with greater efficiency, use superior learning techniques, engage in critical thought, practice thoroughly, and frequently associate new information with previously acquired knowledge.

Interest is divided into two categories: individual interest and situational interest. As stated by Renninger and Stephanie (2012), individual interest is an enduring and growing connection a person has with specific content, characterized by deep engagement and attention to the task at hand. This includes the enjoyment that comes from dedicated participation in a task solely for its own sake, the drive to overcome challenges associated with the task, and the ambition for mastery. Individual interest is of two kinds: emotional interest and cognitive interest.

Emotional interest is connected to feelings and can sometimes be irrational, and involves elements of fantasy. Mazer (2010) stated that cues for emotional interest influence learners by enhancing the pleasure of the task. Conversely, cognitive interest complements emotional interest by offering reasons that improve understanding of tasks. Mazer (2010) argued that these supplementary supports assist learners in creating causal connections by guiding their selective attention toward relevant information and helping them integrate this information internally. Cognitive interest heightens emotional arousal by clarifying information for pupils.

It is difficult to differentiate between emotional and cognitive interest. Hidi and Renninger (2006) argued that distinguishing between these two is largely a contrived categorization due to the operational role of the lateral hypothalamus. This view is true irrespective of the stimulus spiking interest or whether the individual is engaging cognitively or responding emotionally; the lateral hypothalamus is engaged within the brain.

Interest can be cultivated and developed. Renninger and Hidi (2016) introduced a four-stage framework for the evolution of interest.

1. certain environmental aspects that are novel, ambiguous, and surprising capture an individual's attention.
2. this situational interest can extend beyond just one occasion if the tasks appear significant and engaging.
3. consistent experiences of activated and sustained situational interest can evolve into a burgeoning personal interest, prompting the individual to seek further interactions with the subject.
4. this budding personal interest can mature into a self-sustaining, well-formed personal interest from different situations.

Situational interest merges emotional elements with cognitive aspects like focused attention and perceived importance, influenced by the characteristics of the environment. Situational interest, as observed within a classroom, has the potential to foster learning by enhancing concentration and involvement. Glatter et al. (2016) defined a classroom as a space where more than two individuals gather for learning, with one person assuming the role of instructor and others as learners. Traditionally, this setting consists of various elements such as chairs, desks, storage units, writing boards, materials, and the overall surroundings.

The physical environment of a classroom consists of everything perceivable within the classroom that can be touched, seen, and felt. Wainwright (2012) noted that the tangible aspects of the classroom consist of the building, layout, seating, bulletin boards, the overall physical climate and others. A classroom with insufficient space for pupils' activities, inadequate ventilation, lack of instructional resources, unqualified teachers, and an overcrowded class presents health risks, limits teacher effectiveness, and impedes pupils' achievement. Rands and Gansemer-Topf (2017) remarked that the area around pupils' desks should be spacious enough to allow the teacher easy access for performance oversight and to attend to learners' needs.

The seating arrangement plays an important role in the classroom. The layout of seats can differ depending on the classroom activities. Desks can be arranged in neat, organized rows to facilitate class activities. A well-planned seating arrangement provides several advantages, such as fostering collaborative learning, enhancing classroom activities, and ensuring optimal use of space. Many classrooms today often have desks set up in rows. This arrangement does not foster

interaction among pupils as it primarily presents the learner as an individual completing tasks. Harvey and Kenyon (2013) identified various seating arrangements to include: traditional, round tables, horseshoe or semicircular setups, double horseshoe, grouped pods, and paired seating that may provide comfort and warmth inside the classroom.

Creating a classroom ambiance that is warm, comfortable and safe is paramount. A classroom adorned with vibrant colors, posters, well-organized bulletin boards, and other engaging decorations enhances teaching and learning. The choice of colors for classroom walls has particular significance and impact, especially in primary schools. Moreno (2016) advised teachers to include pupils in the process of classroom decoration so that the walls and ceiling are lively and visually enticing.

Poor airflow and lighting can hinder classroom decoration and the productivity of people inside the classroom. Good lighting in the classroom makes sure everyone can see and that things are clear. Philips (2014) noted that classrooms with limited windows and insufficient natural light contribute to increased levels of pupils' depression. Also, if windows don't have the right shades or blinds, it can be hard to use visual aids in the classroom. Adequate ventilation, provided by windows, ensures the circulation of fresh air. With comfort in the classroom, teaching and learning can be effectively facilitated through the use of instructional materials.

Instructional materials (IM) are educational tools aimed at enhancing pupils' knowledge, abilities, and skills while also evaluating their understanding and fostering holistic development. Isola (2010) described instructional material as anything that can effectively aid the teaching and learning process. Utilizing a diverse range of IM boosts the chances that pupils will absorb more information, retain it longer, and enhance achievement through productive social interaction in the classroom.

The social relationships within the classroom add further significance to its physical structure. The social environment pertains to how the surroundings inform or enhance interactions among pupils, teachers, and other educational assets. It involves the interactions between teachers and pupils, as well as among pupils themselves within the classroom.

At the core of the classroom social atmosphere lies the support provided by teachers to facilitate student learning. Teacher support includes the care developed through personal relationships with pupils. This means offering both emotional and instrumental help, as Federici and Skaalvik (2014) explained. The emotional support provided by teachers demonstrates the ability to establish constructive relationships with pupils, promoting their autonomy, abilities, and holistic emotional and social health (Schenke et al., 2017). This foundation is essential for effective teaching and is enhanced through the provision of instrumental support. Instrumental support involves providing students with academic guidance and assistance, which includes offering instructional resources and practical support to facilitate learning (Suldo et al., 2009).

Concept of Academic Achievement

Academic achievement is an important factor in education. Steinmayr et al. (2014) described it as how well a person has reached their education goals, whether they are short-term or long-term. It is a measure of the knowledge acquired in formal education through test scores, grades, grade points, average, and degrees.

A person's view of academic success is influenced by the metrics applied to evaluate it and the motive of the individual defining the term. Steinmayr, et al. (2014) highlighted three different ways to define academic achievement which are: knowledge acquired in an education system (general); grades or scores obtained in an achievement test, assignment, project, among others (criteria based on what is taught); education degrees and certificates (overall signs of academic achievement).

Theoretical Framework

The study is anchored on three theories: Gordon Allport's Personality Trait Theory (1897 – 1967); Lev Vygotsky's Social Development Theory (1896-1934); and Herbert J. Walberg's theory of Academic Achievement (1981).

Gordon Allport's Personality Trait Theory (1897 – 1967)

Human beings are motivated by the tendency to satisfy biological survival needs, which Allport (1961) referred to as opportunistic functioning and is different from propiariate functioning. Opportunistic functioning can be described as responding to things, focusing on the past, and being related to our bodies. Allport felt that opportunistic functioning was relatively unimportant for understanding most human behavior. Most of what people do is driven by propiariate functioning. Propiariate functioning is proactive, future-oriented and involves psychological sensations. It is doing things in keeping with someone's real nature or interest.

Allport (1961) classified dispositions or traits into three types, namely: *central traits*- these are traits that are more closely tied to the proprium (one's self) than others; *secondary traits* – these are not quite so obvious, or so general, or consistent; and *cardinal traits*- those characteristics that significantly shape an individual's life.

Allport's theory of personality traits is relevant to the study as the individual disposition is a very good factor to promote

teaching/learning and also achievement. The cardinal trait carries the main determinant of the pupils' interest. Early discovery of this trait in the child at the primary school stage would provide necessary information needed to direct the child correctly for better achievement.

Lev Vygotsky Social Development Theory (1896-1934)

Vygotsky (1962) asserted that we acquire knowledge through our interactions and communications with other individuals. Three main themes indicate Vygotsky's social development theory:

1. Social relationship is fundamental to development, awareness, and cognition, which emerge as a result of socialization and social activities. He proposed that all learning occurs on two dimensions: interaction with others and incorporation into one's cognitive pattern.
2. The More Knowledgeable Other (MKO)- learning through interaction is determined by the MKO. The MKO is normally a teacher, coach, or older adult, peers, a younger person, or even digital devices.
3. The Zone of Proximal Development (ZPD) represents the concept that cognitive growth has a specific limit within a "zone of proximal development". This "zone" is the possible area of exploration within the appropriate developmental age for which the pupil is cognitively prepared, but requires help and social interaction to fully develop.

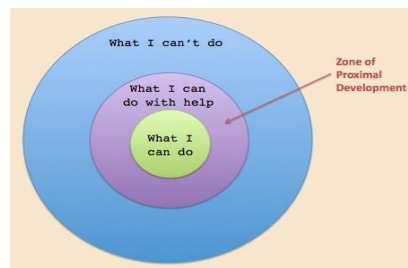


Figure 1. Zone of Proximal Development (Vygotsky 1978)

The inner ring represents what the child already knows, while the third ring represents what s/he still does not know. The space situated between the inner ring and the outer ring is identified as the Zone of Proximal Development, that is, where learning is possible. Vygotsky's theory advocates for learning environments where pupils are active participants in their education.

Herbert J. Walberg's theory of Academic Achievement (1981)

Walberg's educational productivity theory looks at the things that affect learning and how they influence students' success. He used different methods to discover nine factors that affect students' grades, including:

1. ability; age; motivation or self-concept;
2. quantity of instruction; the quality of the instructional experience,
3. the home environment, the ambiance of the classroom, the influences of peer groups, and mass media (Walberg, 1981).

The first three things in Walberg's model (ability, age, and motivation) are qualities that learners already have. The next two variables, quantity of instruction (measured through reports of homework and class attendance) and the quality of the instructional experience, can be evaluated based on their relevance to the instructional experience. The remaining variables: home environment, classroom or school environment, peer group influence, and mass media, are categorized as environmental factors (Fraser et al., 1987).

Walberg's theory of educational productivity is important to this study because it focuses on the factors that affect how well students perform in school. Learning and academic achievement are only enhanced through pupils' personality (interest, ability, age, and motivation), quantity of instruction and quality of instructional experience, and the environment (classroom climate, home environment, peer group, and exposure to media).

3. Research Methodology

Design of the Study

This study employed a correlational research design. According to Bhandari (2022), correlational research tries to find links between things without the researcher changing anything. A correlation indicates the intensity (very weak, weak, moderate, or strong) and direction (positive, negative, or neutral) of the relationship among the variables.

Area of the Study

The area of the study is Abia State. Abia State is one of the five States situated in the eastern region of Nigeria, created

from the Imo State by the military leader during that era, President Ibrahim Badamasi Babangida, on August 27, 1991. Abia State has 17 Local Government Areas (LGAs) and 3 educational zones. The choice of Abia State is because commerce and subsistent agriculture are so pervading that even children's interest is more in how to make money. Also, Parents do not even have time for their children.

Population of the Study

The target population is all primary 3 pupils in Abia State. The population of primary 3 pupils in Abia State was twenty-seven thousand, two hundred and eleven (27,211) from 882 primary schools in Abia State. (Source: Planning and Statistics Department, ABSUBEB, 2019). Primary 3 pupils are selected for the study because they are between the ages of 8 and 9 years old. This age is regarded as a magical age (Cinelli, 2015). It's the age at which children begin to experience physical, mental, and emotional growth. At this age, children become more independent and more mature. The child starts to make efforts to do things independently and no longer asks for complete help (Cinelli, 2015).

Sample and Sampling Techniques

A sample of 1,368 basic 3 pupils was used for the study through a simple sampling technique in an intact class. This sample size represented 5% of the entire population as recommended by Cohen et al. (2011) for a large population.

Data Collection

Three research instruments were used for data collection in the study, namely: interest rating scale, classroom environment questionnaire, and Pupil's pro-forma results. The Pupils' Interest Scale (PIS) is with two clusters: Pupils' English Language Interest Scale (PELIS) and Pupils' Mathematics Interest Scale (PMIS); Classroom Environment Questionnaire (CEQ) has two sections: Classroom Physical Environment Questionnaire (CPEQ) and Classroom Social Environment Questionnaire (CSEQ) developed by the researcher; and Pupils' Annual Academic Achievement Scores (PAAS) in mathematics and English language for the 2019/2020 academic session. PELIS and PMIS contain 12 items each. The items are placed on a four-point rating scale of Often (O), Sometimes (S), Rarely (R), and Never (N) response options with the following points of 4, 3, 2, and 1, respectively. CPEQ and CSEQ each comprise 14 items, using a four-point rating scale of Very Highly Satisfactory (VHS), Highly Satisfactory (HS), Moderately Satisfactory (MS), Not Satisfactory (NS) response options with 4, 3, 2, and 1 points, respectively.

Direct Delivery Method (DDM) was used to administer the questionnaire to the pupils through the assistance of three research assistants who were instructed on how to explain and interpret the response options to the pupils. A 100% return rate was recorded, and the pupils' annual scores in English Language and Mathematics were collected from the class teacher.

Validation of the Instrument

The instrument was validated by three specialists who critically examined the instruments in terms of the relevance and clarity of the item statements. The validators' corrections, observations, and suggestions were incorporated into the final draft of the instruments before administration.

Reliability of the Instrument

Cronbach's Alpha estimate analysis was used to determine the internal consistency coefficient of the instruments. The values of 0.78 and 0.75, respectively, for PELIS and PMIS, 0.76 and 0.71 for CPEQ and CSEQ, indicate that the instruments are reliable to be used for the study. Glen (2015) suggests a general guideline for understanding reliability based on Cronbach's alpha method. This guideline of the rule of thumb was used in the study.

Data Analysis

Simple linear regression statistic was used to answer the research questions. The Pearson product-moment correlation method was used to see how the different variables were related to each other. Dancey and Reidy (2007) interpret r as follows:

- Very Weak: 0.01 - 0.19
- Weak: 0.2 - 0.39
- Moderate: 0.4 - 0.59
- Strong: 0.6 - 0.79
- Very Strong: 0.8 - 0.99

For both positive and negative r , 1 was considered a positive relationship and 0 was considered a non-relationship.

In testing the hypotheses, analysis of variance (ANOVA) statistic was used at a 0.05 alpha level of significance. If the probability (p) value is lower than the significance alpha level ($p < 0.05$), the null hypothesis, asserting no significant

relationship, is dismissed, and the alternative hypothesis positing a significant relationship is affirmed. Conversely, if the probability (p) value exceeds the alpha level of significance ($p > 0.05$), the null hypothesis of no significant relationship is accepted, while the alternative hypothesis of a significant relationship is dismissed. (SPSS 23 Version)

4. Results

The results are presented according to research questions and research hypotheses that guided the study.

Research Question One:

How does pupils' interest correlate with their academic achievement in English Language?

Table 1. Regression analysis of the relationship between pupils' interest and their academic achievement in English Language

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Pupils' cum Ave. Score (x)
1	.276 ^a	.076	.076	11.86768	54.1%

a. Predictors: (Constant), Interest

Table 1 shows that simple linear regression analysis was conducted to evaluate the extent to which interest could predict pupils' academic achievement in English language. The R^2 was .076, indicating that interest explained approximately 7.6% of the variance in English language. The result reveals a weak positive relationship between pupils' interest and academic achievement in English language.

Research Question Two:

What is the relationship between pupils' interest and their academic achievement in Mathematics?

Table 2. Regression analysis of the relationship between pupils' interest and their academic achievement in Mathematics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Pupils' Mathematics. Cum. Ave. Score (x)
1	.718 ^a	.302	.301	12.18775	55.9%

a. Predictors: (Constant), Interest

Table 2 reveals that simple linear regression analysis was conducted to evaluate the extent to which interest could predict pupils' academic achievement in Mathematics. The R^2 was .30, indicating that interest explained approximately 30% of the variance in Mathematics. This reveals a weak positive relationship between pupils' interest and academic achievement in Mathematics.

Research Question Three:

What is the relationship between classroom physical environment and pupils' academic achievement in English Language?

Table 3. Regression analysis of the relationship between classroom physical environment and pupils' academic achievement in English Language

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Pupils' Eng Lang. Cum. Ave. Score (x)
1	.060 ^a	.406	.397	12.32483	54.1%

a. Predictors: (Constant), Classroom physical environment

Table 3 reveals the Simple linear regression analysis was conducted to evaluate the extent to which classroom physical environment could predict pupils' academic achievement in English language. The R^2 was .41, indicating that classroom physical environment explained approximately 41% of the variance in English language score. The result reveals a moderate positive relationship between classroom physical environment and academic achievement in English language.

Research Question Four:

How does the physical environment of the classroom influence pupils' academic achievement in Mathematics?

Table 4. Regression analysis of the relationship between classroom physical environment and pupils' academic achievement in Mathematics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Pupils' Mathematics. Cum. Ave. Score (x)
1	.019 ^a	.643	.567	12.38364	55.9%

a. Predictors: (Constant), Classroom physical environment.

Table 4 shows that simple linear regression analysis was conducted to evaluate the extent to which classroom physical environment could predict pupils' academic achievement in Mathematics. The R^2 was .64, indicating that classroom physical environment explained approximately 64% of the variance in Mathematics academics achievement. The result

reveals a strong positive relationship between classroom physical environment and academic achievement in Mathematics.

Research Question Five:

How does the classroom, social environment relate to pupils' academic achievement in the English Language?

Table 5. Regression analysis of the relationship between classroom social environment and pupils' academic achievement in English Language

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Pupils' Eng Lang. Cum. Ave. Score (x)
1	.475 ^a	.733	.742	12.33433	54.1%

a. Predictors: (Constant), Classroom social environment.

Table 5 reveals Simple linear regression analysis was conducted to evaluate the extent to which classroom social environment could predict pupils' academic achievement in English language. The R^2 was .73, indicating that classroom social environment explained approximately 73% of the variance in pupils' academic achievement in English language. This reveals a strong positive relationship between classroom social environment and academic achievement in English language.

Research Question Six:

What is the relationship between classroom social environment and pupils' academic achievement in Mathematics?

Table 6. Regression analysis of the relationship between classroom social environment and pupils' academic achievement in Mathematics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Pupils' Mathematics. Cum. Ave. Score (x)
1	.683 ^a	.814	.801	12.38125	55.9%

a. Predictors: (Constant), Classroom social environment.

Table 6 reveals the simple linear regression analysis was conducted to evaluate the extent to which classroom social environment could predict pupils' academic achievement in Mathematics. The R^2 was .81, indicating that classroom social environment explained approximately 81% of the variance in pupils' academic achievement in Mathematics. The result reveals a very strong positive relationship between classroom social environment and academic achievement in Mathematics.

Hypotheses

H₀₁: There is no significant relationship between pupils' interest and their academic achievement in English language.

Table 7. Analysis of variance of the relationship between pupils' interest and their academic achievement in English Language.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7488.106	1	17488.106	124.168	.000 ^b
	Residual	212248.749	1367	140.842		
	Total	229736.855	1368			

a. Dependent Variable: English Language b. Predictors: (Constant), Interest

Table 7 reveals that there is a significant positive relationship between pupils' interest and their academic achievement in English language in Abia state primary schools, [$F(1, 1367) = 124.168, p = .000$]. Since the associated probability value ($p = 0.000$) is less than the alpha level of significance ($\alpha = 0.05$), the null hypotheses is rejected.

Hypothesis 2

H₀₂: There is no significant relationship between pupils' interest and their academic achievement in Mathematics.

Table 8. Analysis of variance of the relationship between pupils' interest and their academic achievement in Mathematics.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7341.060	1	7341.060	49.421	.000 ^b
	Residual	223851.661	1367	148.541		
	Total	231192.721	1368			

a. Dependent Variable: Mathematics b. Predictors: (Constant), Interest

Table 8 shows that there is a significant positive relationship between pupils' interest and their academic achievement in Mathematics, [$F(1, 1367) = 49.421, p = .000$]. The table indicates that the regression model significantly relates to the dependent variable. Since probability value ($p = 0.000$) is less than the alpha level of significance ($\alpha = 0.05$), the null

hypotheses is rejected.

Hypothesis 3

H₀₃: There is no significant relationship between the classroom's physical environment and pupils' academic achievement in English Language.

Table 9. Analysis of variance of the relationship between classroom physical environment and pupils' academic achievement in English Language

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	821.356	1	821.356	5.407	.020 ^b
	Residual	228915.499	1367	151.901		
	Total	229736.855	1368			

a. Dependent Variable: English Language b. Predictors: (Constant), Classroom physical environment

Table 9 reveals that there is a significant relationship between classroom physical environment and pupils' academic achievement in English language, [$F(1, 1367) = 5.407, p = .020$]. Since the associated probability value (p) = 0.020 is less than the alpha level of significance ($\alpha = 0.05$), the null hypotheses is rejected.

Hypothesis 4

H₀₄: There is no significant relationship between the classroom's physical environment and pupils' academic achievement in Mathematics.

Table 10. Analysis of variance of the relationship between classroom physical environment and pupils' academic achievement in Mathematics

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	87.437	1	87.437	.570	.450 ^b
	Residual	231105.284	1367	153.355		
	Total	231192.721	1368			

a. Dependent Variable: Mathematics b. Predictors: (Constant), Classroom physical environment

Table 10 reveals that there is no significant positive relationship between classroom physical environment and pupils' academic achievement in Mathematics, [$F(1, 1367) = .570, p = .450$]. The table indicates that the regression model does not significantly relate to the dependent variable. Since probability value ($p = 0.450$) is greater than the alpha level of significance ($\alpha = 0.05$), the null hypotheses is accepted.

Hypothesis 5

H₀₅: There is no significant relationship between classroom social environment and pupils' academic achievement in English Language.

Table 11. Analysis of variance of the relationship between classroom social environment and pupils' academic achievement in English Language

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	468.454	1	468.454	3.079	.080 ^b
	Residual	229268.401	1367	152.136		
	Total	229736.855	1368			

a. Dependent Variable: English Language b. Predictors: (Constant), Classroom social environment

Table 11 unveils that there is no significant positive relationship between classroom social environment and pupils' academic achievement in English Language, [$F(1, 1367) = 3.079, p = .080$]. The table indicates that the regression model does not significantly relate to the dependent variable. Since probability value ($p = 0.080$) is greater than the alpha level of significance ($\alpha = 0.05$), the null hypotheses is accepted.

Hypothesis 6

H₀₆: There is no significant relationship between classroom social environment and pupils' academic achievement in Mathematics.

Table 12. Analysis of variance of the relationship between classroom social environment and pupils' academic achievement in Mathematics

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	176.467	1	176.467	1.151	.283 ^b
	Residual	231016.254	1367	153.295		
	Total	231192.721	1368			

a. Dependent Variable: Mathematics b. Predictors: (Constant), Classroom social environment.

Table 12 reveals that there is no significant positive relationship between classroom social environment and pupils' academic achievement in Mathematics in Abia State primary schools, [$F(1, 1367) = 1.151, p = .283$]. Since the associated probability value ($p = 0.283$) is greater than the alpha level of significance ($\alpha = 0.05$), the null hypotheses is accepted

5. Discussion of the Findings

Relationship between interest and academic achievement in English Language.

The result of the study indicates that interest explained approximately 7.6% of the variance in English language academic achievement scores. Simply, there is a weak positive relationship between pupils' interest and academic achievement in the English language. The results of this study do not align with the conclusions drawn by Silvia in 2006 and Paul in 2013, highlighting that interest is essential for developing knowledge and skills. Also, the finding is in disagreement with the findings of Kpolovie et al. (2014), which showed that pupils' interest and their academic achievement significantly correlate positively.

The current results also disagree with the discoveries of Harackiewicz et al. (2008) and Hidi (2001), who found that interest affects how well people do in school and at work. Also, the findings of this current study tend to agree with El-Omari (2016), who did not find interest as a factor influencing the academic achievement of pupils in English language. Further, this research supports the conclusion of Goulart and Bedi (2011), who found that interest does not affect how well students do in school. This shows that there is a small connection between students' interest in Mathematics and how well they do in the subject.

Relationship between interest and academic achievement in Mathematics

The result of the study indicates that interest explained approximately 30% of the variance in Mathematics. This shows there is a weak connection between pupils' interest and their academic scores in Mathematics. The findings of the study are not in tandem with the findings of Abaidoo (2018) discovery of interest as one of the factors that contribute to improvement in academic achievement. However, the findings of the study are in agreement with the findings of Wong and Wong (2019) that no significant relationship existed between interest and pupils' academic achievement in mathematics.

Relationship between classroom physical features and pupils' academic scores in English Language

The study shows that there is a connection between the classroom physical features and how well students do in school. The finding of the study reveals that classroom physical environment explained approximately 41% of the variance in English language scores, which is a moderate positive relationship. The finding agreed with the findings of Adelodun and Asiru (2015), who discovered that a significant relationship existed between the role of instructional resources and the academic achievement of students in English Language. Moreover, this finding aligns with the conclusions reached by Okhakhu et al. (2016), which indicated a relationship between the use of teaching resources and students' achievement in the English Language.

The findings of the present study are not in line with the results of Durán-Narucki (2008) study, which showed that school facilities with poorer conditions were associated with lower attendance and achievement in Mathematics and ESL (English as a Second Language) tests. The study agrees with the findings of the study conducted by Alimi et al. (2012) that discovered that there is a relationship between classroom physical facilities and the academic achievement of students.

Relationship between classroom physical environment and pupils' academic achievement in Mathematics

Classroom physical environment and pupils' academic achievement are significantly correlated positively, as revealed by the results of the study. The finding indicates that classroom physical environment explained approximately 64% of the variance in Mathematics scores. The finding is in agreement with the findings of Philiat and Wanjobi (2011), which revealed that the type of school facilities affects the academic achievement of students in Mathematics. The results are also consistent with the findings of Ikwuka and Usifoh (2016); Miciano (2005), which revealed that students instructed with makeshift teaching materials excelled academically in Mathematics.

Relationship between classroom social environment and pupils' academic achievement in English Language

The finding of the study reveals that the classroom social environment explained approximately 73% of the variance in pupils' academic achievement in English language. This revealed there is a strong positive relationship between classroom social environment and pupils' academic achievement in English Language. The finding agrees with the findings of Gedamu (2017), which found positive and significant correlations between classroom climate variables and academic achievement in English language. The findings also support the findings by Rita and Martin-Dunlop (2011), finding that there is a strong relationship between students' perception of the elements of teacher support and fairness, and academic achievement. The finding is not supported by Ahmad (2007) finding that there is no relationship between the elements of student closeness, cooperation, and students' achievement.

Relationship between classroom social environment and pupils' academic achievement in Mathematics

The result of the study revealed that the classroom social environment explained approximately 81% of the variance in pupils' academic achievement in Mathematics. The study shows a strong positive relationship between classroom social environment and pupils' academic achievement in Mathematics. The finding agrees with the findings of Salina et al. (2007) found that there is a strong connection between students relating to others, being involved, and doing well in mathematics.

Educational Implications of the Study

This study has a number of implications for teachers, parents, pupils, guidance counselors, society, and the school head.

The study provides empirical information on the relationship between pupils' interest, classroom environment, and academic achievements. These are important predictors that, if not properly addressed, pupils' academic achievement will continue to deteriorate, thereby hindering pupils' educational progress. This further implies that knowledge of pupils' interests from the onset would equip parents and teachers with adequate ways to direct and assist pupils to increase academic achievement.

The findings that there is a very weak relationship between classroom physical facilities and academic achievement would imply that the provision of classroom physical environment is not essential to promote pupils' academic achievement in the school. Thus, school administrators and society should consider other factors promoting academic achievement at the primary education level.

The main contribution of the study to the existing body of knowledge, through the findings of the study, is that early discovery of interest would be important for the type of teachers' or parents' emotional and instrumental support, either for early intervention in disadvantaged areas or encouragement in advantaged areas. Furthermore, given that the correlation between the variables is positive, it's crucial to foster pupils' interest and the learning environment, ultimately leading to enhanced academic achievement.

6. Conclusions

Pupils' interest serves as a psychological characteristic that promotes learning in a supportive classroom ambience, but cannot be associated with boosting academic achievement in both English language and Mathematics. Also, the academic achievement of pupils in English language and Mathematics has moderate and strong positive relationship with the classroom's physical environment respectively, while the classroom social environments have strong and very strong relationship with pupil' AA in English language and Mathematics respectively. This reveals that elements such as classroom buildings, resources, teaching materials, proper airflow, and social interactions (emotional and instrumental support, peer engagement, and mutual respect) promote pupils' academic achievement in English language and Mathematics. Thus, interest (emotional and intellectual) do not play insignificant role in pupils' AA in English language and Mathematics. Results from this study reveal that the classroom environment influences pupils' academic achievement in English language and Mathematics.

The following recommendations were proposed:

1. School heads and administrators should ensure that classroom facilities are exemplary by providing adequate space, appropriate seating arrangements, quality flooring, roofing, and other amenities.
2. Teachers in the classroom should guarantee that both emotional and instrumental support are offered to pupils to foster their academic achievement.
3. Schools should hold workshops aimed at raising awareness regarding the significance of pupils' interest in their academic journey.
4. The State Ministries of Education (MOE) should include the classroom environment as a requirement for school approval.

Acknowledgments

In a great measure, I appreciate the valuable contributions of Profs. J. O. Chukwu and J. U. Ibiam my Ph.D supervisors. I also thank Drs. A. U. Ngwoke; C. Ugwuanyi; C. I. Egbe, J. G. Arowolo; Jubril Abdurkadir; B. U. Akano; and others who directly or indirectly took time to participate in this study. Rev. Fr. Dr. Law Ejiofo is greatly appreciated.

Authors contributions

Dr. John Afamefuna Emenike is responsible for the study design, revising, data collection coordination, drafted the manuscript and finally revised the article.

Funding

This work was supported by family and friend.

Competing interests

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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