

## INFLUENCE OF LEARNING STYLES ON PRIMARY SCHOOL PUPILS' ACADEMIC ACHIEVEMENT IN MATHEMATICS IN NSUKKA URBAN ENUGU STATE

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### Abstract

The study considered the influence of learning styles on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban, Enugu State. Three research questions guided the study. 10 primary schools were selected out of the 20 public primary schools within the area. Ten primary school teachers and pupils were sampled from each of the ten (10) selected schools making a total of (200) thereby bring the total respondent for the study to two hundred (200). The study adopted descriptive survey design. Questionnaire was the major instrument used for data collection. The major findings revealed that visual learning style, auditory learning style and kinesthetic learning style influence Primary School Pupils' Academic Achievement in Mathematics. Among others, it was recommended that educational programs should be designed, planned and implemented based on the preferred learning styles of pupils and pupils should be examined to know their preferred learning styles. This would help them gain control and improve their academic performance especially in Mathematics. Teachers should equally match their teaching styles with the pupils' preferred learning styles. Furthermore, teachers should provide varieties of activities and opportunities for pupils to use their skills continuously.

**Keywords:** Influence, Learning Style, Primary School and Pupils

### Introduction

Most countries have systems of formal education which are commonly compulsory. In these systems, pupils progress through series of schools. Schools in the modern time are regarded as the most suitable, active and formal agencies of education (Bennett, 2011). A primary school is the foundation of formal educational system. The importance of primary education lies on the fact that other levels of education are built on it (Oni, 2008). It is an essential investment field on which the entire superstructure of life of the individual and nation is built. One of the key subjects taught in primary schools is Mathematics.

Mathematics is a branch of study, which contributes immensely to scientific and technological development. It is a subject, which is recognized as the mother of all learnings. For example, other subjects derive a lot from applications from mathematics (Walshaw, 2012). It also uses a universal language and it is essential in almost every field. Cockcroft (2011) for example, believes that without mathematics, the normal and cohesive human life is a mirage. It would be very difficult and almost impossible for a person to live on the earth without Mathematics.

Now, important as Mathematics may be both in school system and in real life situations, there are indications that pupils' academic achievement in Mathematics is diminishing and poor. Trends in International Mathematics and Science Study (2012) show that Mathematics achievement over three decades has witnessed a downward trend. In primary schools in Nigeria, with particular reference to Nsukka Urban, the story is not different (Rose, 2012). Different people give different reasons for the said poor academic achievement in Mathematics. Breckler, Teoh & Role (2011);

Orhun (2011) and Naik (2013) argue that it may be due to the variance between the teachers' instructional method and the learners learning style. Siyepu (2013) believes that it is inadequacy of trained teachers as well as lack of textbooks and other resources. For Henning (2013), it is caused by teachers who are not conscious of the varieties of learning experiences that are evident in learning styles of pupils.

Learning style refers to the different ways by which people learn. Precisely, leaning style refers to an individuals' preferred ways of absorbing, processing, comprehending and retaining information. Learning style explains the way the way an individual concentrates, processes, internalizes and retains desired information (Dunn, 2010, in Hawk & Shah, 2014). Classifications of learning styles abound. However, for the purpose of this study, learning styles would be limited to visual, auditory and kinesthetic types. It is expected that when learners are taught in accordance with their learning styles, and when they consider their own styles while studying, there would be positive academic achievement.

Achievement is an accomplishment made by an individual. Academic achievement is the knowledge and skills gained through instruction in the school and determined by the teacher through test scores or marks (Ganai and Ashraf, 2013). It indicates the learning outcome of learners. It is assessed by the use of teachers' rating test and examination. For Browsard (2012), it is the overall performance of learners in school. For the purpose of this study, academic achievement is the extent to which a learner, a teacher or an institution has attained short or long-term educational goals. Academic achievement is usually affected by so many factors.

In Nsukka Urban Central Education Authority, for example, one easily finds teachers who repeatedly use particular teaching methods to address the educational needs of pupils with varieties of learning styles. In addition, many pupils tend to lose interest in this all-important subject as they find it difficult to record good grades in the subject. Some tend to believe that understanding of Mathematics is a privilege of a few who are naturally endowed with particular innate ideas. While some develop serious phobia for Mathematics, others unnecessarily abscond from school and eventually drop out of school. Many pupils who accept to stay in school often do not have good academic results in the subject. All these are worrisome to both parents and stakeholders. Not quite comfortable with the trend, concerned citizens and stake holders are speculating on the possible reasons for the downward trend. The danger is that if nothing is done to remedy the situation, pupils academic achievement in the subject will continue to decline. It is against this background that the researchers are therefore poised to find out the influence of learning styles on pupils' academic achievement in Mathematics in Nsukka Urban. Consequently, the problem of this study put in question form is: do learning styles influence primary school pupils' academic achievement in Mathematics?

### **Research Questions**

1. What is the influence of visual learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority?
2. What is the influence of auditory learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority?
3. What is the influence of kinesthetic learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority?

## Hypotheses

The following null hypotheses guided the study:

1. Visual learning style has no significant influence on the primary school pupils' academic achievement in mathematics in Nsukka Urban.
2. Auditory learning style has no significant influence on the primary school pupils' academic achievement in mathematics in Nsukka Urban.
3. Kinesthetic learning style has no significant influence on the primary school pupils' academic achievement in mathematics in Nsukka Urban.

## Methods

The research design adopted for this study is descriptive survey design. This is because a descriptive survey method attempts to measure one or more characteristics of events, objects, and people at a given time. Osuala (2005) One of the advantages of survey research design is that it allow the study both large and small populations through the use of samples drawn from the population. The design was considered most appropriate for use in this study because the study used representatives' sample of opinions to investigate the problem under study.

The study was conducted in Nsukka Urban in Nsukka Local Government Education Authority (L.G.E.A), Enugu State. Enugu state has 17 Local Government Education Authorities. Nsukka Urban is made up of Mkpunanor, Nru and Ihen'Owerre communities. Ofomata (2005) maintains that the L.G.E.A. has an area of 1,810 km<sup>2</sup> and lies within latitudes 60451N and 70001N, and longitude 70151E and 70301E of the Greenwich meridianThe population of this study comprised of all Government teachers and pupils in public primary schools in Nsukka Local Government Area. The sample size for this study comprised 200 public primary school teachers and pupils. A random sampling technique was adopted in drawing the samples.

The instrument for data collection for this study was a structured questionnaire developed by the researchers based on the purpose of the study. The instrument for data collection was a researcher made instrument with 23 items. "Influence of Learning Styles on Primary School Pupils' Academic Achievement in Mathematics Questionnaire (ILSPSPAAMQ)" was used for data collection. The data were analyzed using mean and frequency distribution tables. The research questions were answered in line with four point rating scale. Based on the four (4) point scale format of the questionnaires, benchmark (decision rule) was obtained by adding all the scores assigned to the degrees of positive or agree and negative or disagree to the statement and then divided by the number of scale.

## Results

The results are presented through research questions:

**Research Question 1:** What is the influence of visual learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority?

**Table 1:** Mean responses of respondents on the influence of visual learning style on Primary School Pupils' Academic Achievement in Mathematics.

S/N	ITEM STATEMENT	SA	A	D	SD	Mean	Rating
1.	Teaching the pupils with drawing shapes and objects makes learning easier and faster.	94	88	10	8	3.35	Accepted
2.	Pupils learn faster when teaching is dramatized	104	72	24	-	3.40	Accepted
3.	Pupils learn better when video is used for teaching.	112	62	18	8	3.34	Accepted
4.	Teaching with computer makes the lesson more interesting for the pupils.	89	71	27	13	3.18	Accepted
5	Pupils understand better when drawings with paper and colours are used for teaching in the class.	68	106	16	10	3.16	Accepted
6	Lessons are easily understood when drawings are on the board.	83	88	26	4	3.18	Accepted
7	Writing clearly on the chalk board makes the lesson easily understood.	120	21	7	52	3.05	Accepted
8	Pupils enjoy assignments that have drawings and shapes.	90	78	20	12	3.23	Accepted

Key: Strongly Agree (SA), Agree (A), Disagree (D) Strongly Disagree (SD).

Table 1 shows responses of respondents that agree on the influence of visual learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority. From the above table, it is observed that teaching the pupils with drawing shapes and objects makes learning easier and faster, pupils learn faster when teaching is dramatized, pupils learn better when video is used for teaching, teaching with computer makes the lesson more interesting for the pupils, pupils understand better when drawings with paper and colours are used for teaching in the class, lessons are easily understood when drawings are on the board and writing clearly on the chalk board makes the lesson easily understood. In summary, visual learning style influences primary school pupils' academic achievement in Mathematics.

**Research Question 2:** What is the influence of auditory learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority?

**Table 2:** Mean responses of respondents on the influence of auditory learning style on Primary School Pupils' Academic Achievement in Mathematics.

S/No	ITEM STATEMENT	S	A	D	S D	Mean	Rating
9	Learning with songs makes teaching and learning more effective.	64	119	14	4	3.21	Accepted
10.	During lessons the use of clap reinforces learning.	104	84	24	-	3.58	Accepted
11.	Playing cassette and sounds during lessons in class makes teaching and learning interesting.	112	62	18	8	3.34	Accepted
12.	During lesson the use of epic story telling makes learning very interesting.	122	72	4	-	3.59	Accepted
13	When teachers use computer set to make audible sounds, lessons become more interesting.	68	106	16	10	3.16	Accepted
14	Teacher's audible voice when teaching makes lessons better understood.	91	71	18	20	3.20	Accepted
15	Repetition of words during teaching makes pupil understand lessons better.	110	70	14	6	3.40	Accepted
16	During lessons, reading and speaking slowly by the teachers makes understanding easier for pupils.	106	73	12	9	3.38	Accepted

Table 2 discusses the influence of auditory learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority. The table reveals that learning with songs, use of reinforcements, use of computer sets, use of epic story-telling, repetition of words and reading and speaking slowly among others, positively influence pupils' achievement in Mathematics.

**Research Question 3:** What is the influence of kinesthetic learning style on Primary School Pupils' Achievement in Mathematics in Nsukka Urban Central Education Authority?

**Table 3:** Mean responses of respondents on the influence of kinesthetic learning style on Primary School Pupils' Academic Achievement in Mathematics.

S/No	ITEM STATEMENT	SA	A	D	S D	Mean	Rating
17.	Pupils are eager to learning new skills, than just hear about them or see them done.	97	77	14	12	3.29	Accepted
18.	Pupils learn faster when they move around freely.	82	67	39	12	3.09	Accepted
19.	Pupils understand easily when they are meant to touch or hold things they learn about.	95	62	27	16	3.18	Accepted
20.	Pupils learn faster when it comes to the use of hands creativity e.g. experiments, carpentry or model building.	86	61	15	28	3.0	Accepted
21	The use of dance during learning makes learning very interesting.	54	34	85	27	2.59	Accepted
22	The use of hand gestures and body language makes explanations easier and understood.	77	95	22	6	3.21	Accepted

Table 3 indicates responses of respondents on the influence of kinesthetic learning style on Primary School Pupils' Academic Achievement in Mathematics in Nsukka Urban Central Education Authority. The responses revealed that pupils are eager to learn new skills than just hear about them or see them done, pupils learn faster when they move around freely, pupils understand easily when they are meant to touch or hold things they learn about, and that pupils learn faster when it comes to the use of hands creativity. From the responses, it is evident that kinesthetic learning style has positive influence on pupils' academic achievement in Mathematics.

### Discussion

Visual learning style influences primary school pupils' academic achievement in Mathematics. In line with Hart, (2009), this means that young learners prefer using sense of sight while learning to other senses. It is as well important to introduce other resources that attract the sense sight such as images, Materials in the learning environment that appeal to the sense of sight like charts, diagrams, grids, plots among others . Visual-aided teachings are thus proved beneficial.

Auditory learning style influences primary school pupils' academic achievement in Mathematics. This is in agreement with the position of Hart (2009) that out of the school too, pupils remember things said to them and make the information their own. They may even carry on mental dialogues and determine how to continue by thinking back on the words of others. In support to this notion, Kolb (2015) adds that often pupils find themselves talking to those around them. In a class setting, when the teacher is not asking questions, they must find a way to express their emotions verbally.

Kinesthetic learning style influences primary school pupils' academic achievement in Mathematics. To support this idea, Magulod (2019) maintains that kinesthetic learners manipulate items and make use of the sense of touch will learning. They prefer practical to theory. They

demonstrate while speaking, they are not good listeners and lose interest in lengthy teaching learning episode. These learners learn best by doing. They need direct involvement in what they are learning. Furthermore, Cassidy (2014) supports that Kinesthetic are usually well coordinated with a strong sense of timing and body movements. In some cases, they often wiggle, tap their feet or move their legs when they sit. Some of these learners were often labeled as hyperactive before this learning style was discovered.

## Conclusion

Based on the findings of the study, the following conditions were drawn: visual learning style, auditory learning style and kinesthetic learning style positively influence primary school pupils' mathematics achievement. Thus, pupils' achievement in Mathematics largely depends on how they are helped to learn through their preferred styles of learning.

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