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# Assessment of Teaching Methods of Long Multiplication in Primary Schools in Uyo Local Government Area, Akwa Ibom State

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## ABSTRACT

*The study examined the influence of teaching methods of long multiplication in primary schools in uyo local government area of Akwa Ibom State. Specific research objective was formulated and used for the study. The research design for this study was an Ex-post Facto design. Simple random sampling technique was used to select 60 respondents out of the population which are divided into two groups of 30 pupils each; one group practiced long multiplication using factors while group two practiced long multiplication using breaking up numbers. The instrument for the study was score sheet constructed by the researcher; the sheet contained two groups namely group 1 and group 2 to take down the performance scores of pupils on the two methods of learning which are the use of factor method and the breaking up number method. Data from 60 completed questionnaires were subjected to percentage analysis and Independent t-test analysis. The findings showed that both methods of teaching had significant effect on the academic achievement of pupils in learning of long multiplication. Moreover, there is a significant different in the academic achievement of pupils in learning of long multiplication in terms of gender and teaching methods. Furthermore, factor method of teaching has been found not appropriate with respect to achievement in learning of long multiplication by the pupils. The study recommended that teaching of science in general and long multiplication in particular should be done in such a way that students learn effectively and perform to achieve better academically. Also breaking up of numbers be incorporated in to the teaching of mathematics at the primary school level.*

## INTRODUCTION

In any given environment, education is important for the development of both individuals and society. It seems impossible for individuals to make the best use of life and society's environmental resources without having proper education in their respective settings. It may then be said, in this regard, that knowledge is one of the essential components of life. Mathematics plays a crucial role in the constantly developing world and the advancement of science and technology. Awareness of mathematics is important in everyday life and in most human activities. It is critical to understand the computerized world and match the newly developed information technology expertise in mathematics. As cited in Benbow & Arjmand (1990), emphasizing this, Krulteskii (1976) said the development of science has recently been characterized by a tendency to become more mathematical for them. Everywhere, mathematical approaches and mathematical styles are penetrating.

The teaching and learning of mathematics is of great importance to education systems around the world, and a great deal of resources is put into these activities to maintain and improve efficiency and effectiveness (Garden,1987). There are two main reasons for adding to the value of mathematics. One is the relation between success and education or job opportunities and achievement in mathematics (Mills, Ablard & Stumpf, 1993). The second is the relevance to a society's science, industrial, technical, and social advancement of the study of mathematics (Burton, 1979).

The four fundamental operations are basic mathematical concepts to be taught at the primary education level: addition, subtraction, multiplication and division, and their relationships. The acquisition of these four principles and their interactions helps pupils to improve their comprehension of numbers and methods and to connect them with challenges of everyday life. Multiplication and division are presented for the first time in the second grade

in the primary education curriculum of Kosova (MASHT, 2004). Second graders discover, according to this program, the definition of multiplication as repeated addition, and division as an inverse multiplication operation (finding a factor when the result and the other factor are known). These principles were taught individually, as in most conventional systems, with multiplication preceding division.

The methodology used by a teacher in teaching long multiplication in primary school matters a lot; this is because when the teaching is ongoing, it will help the student either understand or forget themselves. Student's attitude towards mathematics in general may be one of the issues that teachers may face as a result of applying the various methods of teaching long multiplication in primary school. Most students, regardless of how interesting the teaching method might be as far as "mathematics" is, tend to be afraid of learning. It could also be that the government does not employ trained and skilled teachers to teach the pupils effectively, so the unqualified and the untrained tend to be limited by little or no other teaching methods. Another could be that there are no government funds to equip the school mathematical laboratory with instructional materials and other basic materials needed to explore the various methods of long multiplication teaching that can make it interesting to teach and learn. Finally, several studies on the effect of different teaching methods on the academic achievement of biology students have been carried out. But very few studies have been conducted in the area of effectiveness of various methods of teaching long-term multiplication in primary schools.

## TEACHERS' TEACHING METHOD PREFERENCE AND LEARNING OUTCOMES

Researchers have constantly observed that teacher's teaching methods is significantly related to the preference of pupils' learning method (Mehdikhani, 1983). When Gordinier (2002) explored the learning preferences of elementary school teachers and their use of methods of reading instruction in their classrooms, they found that these two aspects were significantly aligned with each other. For example, the phonics instruction technique was favored by teachers who had a preference for a specific sequential learning method or a preference to process information in organized, stable, and productive ways.

Another study, by Lyons (1985), gathered data through observations and personal journals for one year on the educational approaches of prospective teachers. These findings also support the notion that instructional methods used in classrooms reflect the particular learning preferences of teachers (Lyons, 1985). Marshall's (1991) research, previously mentioned, involving 9,000 teachers, found that a significant majority of teachers both preferred to learn and teach what they call "lecture / textbook learning" by looking and listening. A limited number of teachers, and kinesthetic learning, claimed a preference for touching and doing (Marshall, 1991). The report also showed that more than 90% of teachers tend to work alone and implied this pattern in their classrooms. In contrast to peer groups, the teachers felt that learning was most successful when students interacted with worksheets or the teachers, which they thought would be distracting when learning new and challenging material (Marshall, 1991). In addition to providing further evidence to maintain the perception that teachers' teaching methods complement their teaching students' performance, these studies also outline the preferences of teachers with similar teaching methods that correspond to traditional teaching practices.

## Long Multiplication Methods of Teaching

The current teaching method in schools is old fashioned, which relies heavily on the teacher's performance alone. It is teacher-centered, which is expected to explain, demonstrate, illustrate, and give a detailed note that teachers are expected to participate minimally in the teaching learning process (Dean, 1982). In the success and learning of pupils, engagement and motivation are critical elements. Engaged students learn more and retain more, and more than students who are not engaged enjoy learning activities (Akey, 2006).

In subjects such as mathematics students benefit more from active participation, and by doing more things than just listening to the teacher, they can learn more from their peers and benefit from group dynamism. Since the composition of pupils in a class varies in various aspects, each child should be treated according to his / her individual needs, such as level of mastery, economic background, cultural background, etc. Different techniques and instructional strategies should be used and individual programs should

be customized to suit the needs of the students. Some teachers' style of teaching is to train pupils only for exam purposes. At the conclusion of each semester or term, this exam-oriented approach will be fruitful, but it may not last as the study of the subject will also be done until the tests are all written.

To attract their pupils and make them understand the subject with interest, teachers should apply a combination of different teaching styles. In general, teachers rely heavily on textbooks and regular testing, which makes students value only those activities that contribute to their grade at the end of the year (Barnes, 2000). The teaching methods for lengthy multiplication are below:

Commutative and associative properties: First of all, remembering these properties is critical for students. The commutative property states that the product is not changed by the order of the factors. 4-3 and 3-4, for instance, both equal 12. The associative property indicates that the variables can be grouped in various ways. For instance, (7x2) x5 provides you with the same product as (2x5) x7. These properties help students understand that to solve them easier, they can manipulate equations.

Using Factors: This is one of the ways to help students solve equation easier. Teachers aim is not necessarily to get a right answer as easily as possible when they teach multi-digit multiplication rather is to be able to think in terms of numbers creatively. One of those instances is this; a teacher could take the 4-15 equation, dividing the 15 into its 3 and 5 components. We've got this equation now: 4x3x5. It can now solve it as follows: (4-3) x 5-> 12-5-> 60. This is only to prove that this calculation does not only have one valid way of solving it.

Multiply by 10, 100, and 1000, as well as by 10, 100, and 1000 multiples. Although I have grouped these two ideas together for the purposes of this blog post, piece by piece, this should be taught slowly and carefully. Before teaching tricks such as the "adding zeros" trick, it is important to concentrate on the place value rules while you teach this idea. For example, as pupils are presented with the 45-100 equation, they need to realize that in order to make the commodity 4500, the position values increase by 2 places. Similarly, when multiplying an equation such as 3-1000, to make 3000, the place values increase by 3 places. The teacher can show them that when there are 2 zeros in the variables add 2 zeros to the result after pupils have learned this definition.

Breaking up Numbers: This is one of the most useful strategies out there for mental mathematics. This includes breaking down one of the variables, multiplying them into sets, and then integrating them together. Here is an example: break up the 12 into a 10 and a 2, and then multiply it in parts. Therefore, 12 to 30 becomes (10 to 30) + (2 to 30). It's much easier to solve.

## REVIEW OF LITERATURE

The study was guided by theory of Anchored instruction which is a major paradigm for technology - based learning that has been developed by the Cognition and Technology Group of Vanderb ilt (CTGV, 1990) under the leadership of John Branford. While many people have contributed to the theory and research of anchored instruction, Branford is the principal spokes person. The initial focus of the work was on the development of interactive videodisc tools that encouraged students and teachers to pose and solve complex and realistic problems. The video materials serve as "anchora" (macro-contexts) for all subsequent learning and instructions. As explained by CTGV (1993), "the design of these 'anchora' was quite different from design of videos that were typically used in education" The goal of using anchoras was to create interesting, realistic contexts that encouraged the active construction of knowledge by learners. Anchoras were stories rather than lectures and were designed to be explored by the students and teachers.

Hence learning and teaching activities should be designed around an "anchor" which should be some sort of improvised instructional material or problem situations and improvised curriculum materials should allow exploration by the learning (CTGV, 1993) and also related to the essence of improvisation of instructional materials in Home Economics. Dewey (1929) asserted that education is a lifelong process, a continuous reconstruction and reorganization of experience, which adds to the meaning of experience and increase the ability to direct the course of future experiences. To this, anchoring teaching and learning of Home Economics on the use of improvised materials is derived mainly from the need for the provision of basic, functional and life-long education to citizens.

## METHODOLOGY

The design of the study was Quassi-experimental research design also known as the controlled experimental design. The population of the study consisted of 60 pupils from selected public primary schools in Uyo loal government area. The sample of the study was 60 primary school pupils using census sampling technique. instrument for data collection was a self-developed score sheet by the researcher, the sheet contained two groups; group 1 and group 2 used in recording the performance scores of pupils in the two methods of teaching which are the use of factor method and the breaking up number method. The reliability coefficient of the instrument was 0.75. Mean score, simple t-test and correlation coefficient were the statistical tools used for the study.

### Objective of the Study

The study aimed at assessing the teaching methods of long multiplication in primary schools in uyo local government area, Akwa Ibom state. Specifically the study looked at:

1. Find out the relationship between different methods of teaching long multiplication and pupils' academic performance in primary schools.
2. Ascertain the differences in the effectiveness of different methods of teaching long multiplication in primary school and the pupils' academic performance.

### Research Questions

The following research questions guided the study.

1. What is the relationship between different methods of teaching long multiplication and pupils' academic performance in primary schools?
2. What is the difference in the effectiveness of different methods of teaching long multiplication in primary school and the pupils' academic performance?

Hypotheses

The following hypotheses guided the study

1. There is no significant relationship between different methods of teaching long multiplication in primary school and the pupils' academic performance.
2. There is no significant difference in the effectiveness of different methods of teaching long multiplication in primary school and the pupils' academic performance.

### Data Presentation

#### *Hypothesis 1*

**$H_0$:** There is no significant relationship between different methods of teaching long multiplication in primary school and the pupils' academic performance.

### Level of significance (α=0.05)

| | | Group 1 (lecture method) | Group 2 (demonstration method) |
|---|---|---|---|
| Group 1 (lecture method) | Pearson Correlation | 1 | .008 |
| | Sig. (2-tailed) | | .997 |
| | N | 30 | 30 |
| Group 2 (demonstration method) | Pearson Correlation | .008 | 1 |
| | Sig. (2-tailed) | .997 | |
| | N | 30 | 30 |

From table one above, since the value of "r" tabulated is greater than "r" calculated, the alternative hypothesis was accepted ($H_1$) while the null hypothesis was rejected ($H_0$), therefore there is a significant relationship between different methods of teaching long multiplication in primary schools and their academic performance. This is in agreement with that of Branford, (1990) who conducted a study on the effect of traditional teaching method and discussion method on basic science. The study was guided by three objectives of the study and three research questions. The findings of the study revealed that there is a significance relationship between the teaching methods and the academic performance of the students in Basic science.

#### *Hypothesis 2*

There is no significant difference in the effectiveness of different methods of teaching long multiplication in primary school and the pupils' academic performance.

**Table2.** *Paired Samples Test*

| | | Paired Differences | | | | | T | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair1 | Group 1 (use of factors) - Group 2 (use of breaking up numbers) | -26.567 | 26.109 | 4.767 | -36.316 | -16.817 | -5.573 | 29 | .000 |

From the table two above, since the p-value (0.000) is less than the level of significance (0.05), the null hypothesis was rejected therefore there is a significant difference (26.567) in the effectiveness of different methods of teaching long multiplication in primary schools and their academic performance.

This is in agreement with the study of Akpan & Aminikpo (2017) who studied the effect of Blended learning approach on students academic achievement and retention: A case study of Air Force secondary school Rivers State. Two research questions and two research hypothesis guided the study.

The study adopted a quasi-experimental research design. The population of the study was one thousand two hundred (1200) students, while the sample was eighty (80) students purposefully selected from the entire population. Social studies achievement test (SAT) was used as instrument for data collection, mean, standard deviation and analysis of variance (ANOVA) were the statistical tools used for the study. The finding revealed that students taught using station-rotation model performed most followed by students taught using conventional method, also that students taught using the station-rotation model had the highest retention level, than those taught using the conventional method.

## Conclusion

The study found out that both methods of teaching have significant effect on the academic achievement of students in learning of long multiplication.

## Recommendations

1. The study recommends that the teaching of science in general and long multiplication in particular should be done in such a way that pupils learn effectively and perform better academically.
2. The use of breaking up of numbers should be incorporated into the teaching of long multiplication especially at the primary school level.

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