
RESEARCH ARTICLE

Effective Use of Pictograms in Early Childhood Care and Education: A Study of Selected Nursery Schools in Ojo Local Government Area of Lagos State, Nigeria

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ABSTRACT

The aim of this research is to examine the effective use of pictograms in the Ojo Local Government Area of Lagos State, Nigeria. A simple sampling technique was used to select twenty-five (25) nursery and primary school teachers in four (4) schools, a questionnaire was used to collect data, and a simple percentage and chi-square (χ^2) were used to analyze the data. The result reveals that there is a significant difference between children taught with pictograms and the children taught without them. It is therefore suggested that all the pre-school teachers and caregivers should use pictograms to teach the learners for a better understanding and effective learning, the government should provide instructional materials (pictogram) for public schools, and private school owners should provide the necessary instructional materials needed, and teachers and caregivers should use pictograms effectively for a better result.

KEYWORDS

Pictogram, Caregivers, Children, Learners, and Instructional materials

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1. Introduction

The type of teaching and learning activity that caregivers use in imparting knowledge to pupils at the pre-school level will determine the learners' academic performance. Indeed, Fashola (2017) opines that the quality of every caregiver lies in the appropriate use of pictograms for the pupils in the classroom. It is generally believed that for the efficient learning activity, the use of pictograms as an instructional material plays a tremendous role in teaching and learning of early childhood education. Hence, caregivers' effectiveness could be improved by making effective use of such materials.

Adenekan (2016) defines a pictogram as representations in the form of pictures that convey broad meanings and relations among data. Also, Elegbede (2015) defines instructional materials as those learning resources or educational tools used by caregivers to engage learning in learners. Hence, they serve as means of transmitting knowledge to the learners. Furthermore, Bamidele (2016) defines instructional material as those learning facilities, equipment, and machinery used in workshops, laboratories, and classrooms for the purpose of transmitting knowledge from the caregivers to the learners. The use of pictograms or pictographs brings a greater understanding of what the caregiver is teaching.

Moreso, in order to make learning interesting and better understandable for the learner, there is a need to utilize instructional materials as they assist the caregiver in explaining and illustrating abstract items. They help to fix ideas properly in the mind of children in the early years of their learning.

Omolara (2015) states that instructional materials like pictograms are for effective teaching and learning in the classroom. She opines that the teaching and learning of early childhood learners in our schools need improvement, especially at this time when the child needs to be well-grounded at a tender age.

Instructional materials are materials that can expedite learning through the sense organs of hearing or sight or both. They involve books, programmed learning, and audio-visual materials.

Erickson (2007) defines instructional materials as those teaching materials, some are actual, and some are the predominant source of meaning for learners. Such learning materials include field and classroom study of real things, demonstration, dramatization, object models, and make up (standard and miniature, both photographic and hand-made pictures). Therefore, instructional materials tend to make teaching and learning easier and more effective among children. They aid the learners and teachers. Among the purposes, they serve by learning instructional materials is the stimulation of interest. They do that by giving factual information and facilitation of knowledge.

Erickson (2007) summarized the importance of the use of pictures as instructional materials as follows:

- a. It helps the teacher provide a meaningful source of information.
- b. It provides the teacher with the view of extending learners' experience.
- c. It provides the teacher interest with compelling spring broad into a wide variety of learning activities.
- d. It assists the teacher in overcoming physical difficulties in presenting subject matter; such physical difficulties include: reaching a large audience, knowing what is ordinarily invisible, or only seen with difficulty, as well as saving time and effort, and making essential materials available. Other instructional materials available which are very important to the teacher saddled with the responsibility of imparting knowledge, particularly among children in both nursery and primary schools.

Research has revealed a number of difficulties and problems related to the interpretation of intended meanings. First of all, although drawings can be used effectively to represent static objects, they are modified. Since pictograms need to incorporate the shapes of specific objects, there are limitations to the use of drawings to represent categories of objects, for example, the pictogram "No smoking," which shows a cigarette also applies to cigars and pipes. Another difficulty arises from the symbolic nature of pictograms. A drawing of a car in a pictogram could refer to the car itself, to driving, or to vigilance, as is the case with medicinal pictograms, etc. Thus, one cannot expect a one-to-one correspondence between the pictogram and its meaning. Kolers (2015) states that the meaning of a pictogram has to be inferred through a process of interpretation constructed from both the task in hand, knowledge, and context. As understood by Horton (2014), the interpretation of a pictogram depends on multiple subjective and visual factors.

However, science finds some bases in psychology cognitive system.

- (i) The pictogram reduces load and thus allows cognitive saving.
- (ii) Its descriptive nature provides high-quality pictorial representation, which facilitates memorization.
- (iii) Since it can be used to represent a category, it can provide broad information exceeding the specific items it portrays. The pictogram also benefits from the efficiency of visual imagery.
 - (i) Identification is more precise from a single glance, at a greater distance, and at a greater speed than with words.
 - (ii) Higher resistance to cognitive interference, an image, memorized and recalled as a single unit, would resist interference better than a text made up of several parts.
- (iii) A pictogram can also be better stored in memory due to dual encoding, which is both visual and symbolic. This engenders a deeper level of processing and greater consolidation in memory.
- (iv) Images are perceived better in suboptimal conditions; for example, Haber and Myers (2012), who were interested in the storage of pictograms in memory, found that recognition accuracy was greater for pictograms and poorest for words.

Although participants were able to disregard shapes within pictograms, they were most accurate when presented with the same shapes as those used in the original trials, but across all conditions, participants were most accurate when forced to recall both the shape and the content in the process of learning.

Finally, the application of pictograms and other instructional materials will help caregivers and learners to achieve specific objectives and also provide a very accommodating learning environment. The use of pictograms is the simplest way of learning that is suitable and supplementary for teaching early years in the school.

1.1 Statement of the Problem

The effective use of pictograms as instructional material in early childhood and care education ensures learners' acquisition of literacy and numeracy skills easily and permanently. Nevertheless, it has been realized that there is a need for a coordinated source of information on the use of pictograms as instructional material. Hence, the study will bridge the existing gap.

1.2 Purpose of the Study

The purpose of the study is to:

- Find out the difference between learners taught with instructional materials (pictograms) and those learners that are not taught with a pictogram.
- To find out the use of instructional materials (pictogram) in the teaching of pupils in early childhood study.
- Identify how the use of pictograms influences teachers' choice of method of teaching and learning.

1.3 Research Questions

- i. What is the difference in academic performance of pupils taught with pictograms and pupils taught without them?
- ii. How does the use of instructional materials (pictogram) influence the cognitive performance of early childhood learners?
- iii. How does the use of pictograms influence the teacher's method of teaching in the class?

1.4 Research Hypothesis

- i. There is no significant difference between pupils taught with pictograms and pupils taught without pictograms.
- ii. There is no significant importance of the use of instructional materials (pictogram) on the cognitive performance of early childhood learners.

1.5 Significance of the Study

The main importance of this study is to attempt to improve teaching and learning in the early years. The study should expose the caregivers to different instructional materials that are relevant to children at the nursery level and use them judiciously. The study should also make the learners develop an interest in learning with the use of appropriate educational learning materials.

1.6 Scope of the Study

The scope of the study focuses mainly on the use of pictograms as an instructional material in teaching and learning of early childhood education in the Ojo Local Government Area of Lagos State.

2. Methodology

2.1 Research Design

The research design for this study is the survey research design. The researchers selected the method because it reveals a broad understudy of the respondents' views on the phenomenon under study. Data was collected through the use of a survey questionnaire, collated, analyzed, and interpreted for the purpose of giving a full description of findings by drawing inferences and conclusions.

2.1.1 Population of the Study

The population for the study consists of one hundred teachers in 4 Nursery and primary schools in Ojo Local Government Area of Lagos State. This is so because they will be able to respond to the treatment of the instrument as appropriate.

2.1.2 Sample and Sampling Techniques

The sample for this study is a simple random technique that consists of 25 preschool Caregivers and primary school teachers selected from 4 nursery and primary schools in the Ojo Local Government Area of Lagos State.

2.2 Research Instrument

A self-developed and structured questionnaire was used to get the information required for this study. The questionnaire is divided into two sections. Section A for data collection of information on personal data of respondents, while section B contains (25) items that deal with the use of pictures as instructional materials in early childhood, to which they are to respond by ticking the items under response options, Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (D).

2.2.1 Validity of Instrument

To ensure the validity of the research instrument was obtained through the scrutiny of an expert in the field.

2.3 Procedure of Data Collection

The researchers administered the questionnaire to the participants and collected them on the spot to avoid any loss of this instrument.

2.4 Method of Data Analysis

The information collected from the respondents was analyzed by the use of sample percentage, while the hypothesis was tested by chi-square analysis at a 0.05 level of degree of freedom significance.

$$X^2 = \frac{\sum(O-E)^2}{E}$$

2.5 Presentation of Bio-Data

2.5.1 Section A

Table 1: Distribution of respondents by sex.

Sex	Frequency	Percentage
Male	35	35%
Female	65	65%
Total	100	100%

The table shows the frequency distribution of the respondents' sample (100) in four selected preschools in the Ojo Local Government Area of Lagos State.

Table 2: Distribution of Respondents by Age

Age	Frequency	Percentage
30-35	31	31%
36-40	47	47%
41-45	22	22%
Total	100	100%

The above table shows the age distribution of the respondents in the exercise. It can be deduced that 31% of the respondents were between 30-35 years, 47% were between ages 36-40 years, and 22% were between 41-45 years. This means that respondents of the age range 36-40 years participated more in the exercise because they have the highest frequency.

3. Section B

3.1 Analysis of the Research Hypothesis

The result of the study was analyzed and presented in the table through a chi-square test. Measurement to test the research hypothesis at a 0.05 significance level of degree of freedom to decide if the hypothesis will be rejected or accepted.

3.2 Hypothesis 1:

There is no significant difference between pupils taught with pictograms and pupils taught without pictograms.

Items	A	SD	D	SD	N	DF	P	CAL X ²	TAB X ²	DECISION
1	36	24	30	10	100	4	0.05	51.5	24.99	Rejected
2	40	30	18	12	100					
3	45	15	20	20	100					
4	38	22	18	22	100					
5	55	20	15	10	100					
6	40	30	20	10	100					

Findings

According to the result, the cal x² (51.5) is greater than the tab x² (24.99). This result shows that the null hypothesis is rejected, and the alternative is accepted. This implies that there is a significant difference between pupils taught with pictograms and pupils taught without pictograms.

3.3 Hypothesis 2

There is no significant importance of the use of pictograms on the cognitive performance of early childhood learners.

Items	A	SD	D	SD	N	DF	P	CAL X ²	TAB X ²	DECISION
7	43	20	17	20	100	4	0.05	86.19	24.99	Rejected
8	50	20	20	10	100					
9	35	15	30	20	100					
10	44	26	18	12	100					
11	40	25	15	20	100					
12	30	20	25	25	100					

Findings

The result shows that the cal x² (86.19) is greater than tab x² (24.99). This reveals that the null hypothesis is rejected, and the alternative is accepted. This implies that there is a significant difference between the use of pictograms and the teacher's method of teaching in the classroom.

4. Discussion of Findings

4.1 Hypothesis One (1)

From this hypothesis, we know that there is a significant difference between pupils taught with pictograms and those taught without pictograms. This indicates that a child taught with pictograms performs better than the one taught without pictograms in classwork and also in Early Childhood and Care Education.

Pictograms are a powerful teaching tool that enhances learning. Children assimilate when they see objects or pictures used for explanation.

According to Adewale (2016), a pictogram is a channel through which message, information, ideas, and knowledge are conveyed to learners. This implies that pictogram serves as tools to facilitate the teaching and learning process.

4.2 Hypothesis Two

From this hypothesis, we are made to know that there is a significant relationship between the use of pictograms and the cognitive performance of early childhood learners. The use of pictograms plays a tremendous role in learners' cognitive domain, especially in the learning of literacy and numeracy. This is because learning is made possible through active involvement, that is, "what I see and touch, I will never forget."

4.3 Summary of Findings:

This study reveals that:

1. Pupils taught with pictograms learn better than pupils taught without them.
2. The use of pictograms increases the cognitive performance of an early childhood learner.
3. Pictograms are needed to ensure effective teaching and learning of early childhood learners.

5. Conclusion

This study was embarked upon with the aim of looking at the effectiveness and utilization of pictograms in the early years in the Ojo Local Government Area of Lagos State. The study established the fact that using pictograms increases cognitive performance and effective teaching and learning of early childhood learners. It can be concluded that pictograms play great roles in teaching and learning especially, and their usage also goes a long way to determine teachers' teaching methods.

5.1 Recommendation

In view of the findings, the following recommendations are made.

- Teachers are encouraged to commit themselves to ensuring the effective use of pictograms in preschools.
- Teachers should be trained and retrained on how to use pictograms effectively and how to improvise instructional materials.
- There should be a forum where all early childhood teachers will meet periodically to update their knowledge and assess the effectiveness of pictograms.
- Schools should appeal to non-governmental organizations and private sectors, individuals, and industries to assist in supplementing and substituting obsolete educational materials or instructional materials.
- School administrations should make efforts to provide instructional materials and monitor teachers in the process of teaching and learning.

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References

- [1] Adenekan, B.F. (2016), *Principles and Practices of Educational Media*. Lagos: Muskaf Printing Press.
- [2] Adewale, I.B. (2016), *Essential Educational Pictures for Nursery Schools*. Ilorin: Jumes Printing Press.
- [3] Bamidele, E.O. (2016), *The use of Pictures in Teaching Early Years*. Abeokuta: Osiele Studies Services.
- [4] Elegbede S.D. (2015), *Principles and Practices of Instructional Materials*. Ibadan: Joytal Printing Press.
- [5] Erickson, B.D (2007), *Introduction to Early Childhood Education*. London, Bellviews Communication Ltd.
- [6] Fashola, M.A. (2017), *Introduction to Educational Research*. Lagos: Raytel Communication Press.
- [7] Kolers, Y.B. (2015), *Introduction to Educational Research*. London: Emirate Communication Limited.
- [8] Mayer, C.F. (2014), *Education Child Psychology*, New York, Moliouse Communication Limited.
- [9] National Policy on Education (2013), 5th Edition, *Federal Republic of Nigeria*. Abuja.
- [10] Nkem, C.N. (2015), *Pictograms at a Glance*. Owerri Sunlight: Communication Limited.
- [11] Ogwo, D.B. (2015), *Element of Instructional Media and Technology*. Lagos: Tonade Communication Limited.
- [12] Omolara, E.A. (2015), *Contemporary Issues in Early Childhood Education*. Ibadan: Joytal Printing Press.
- [13] Orakwe, D.F. (2009), *Elements of Education Pictogram*. Onilenu Lagos: Killat Printing Press.
- [14] Otsubo, F.B. (2014), *Concept of Instructional Strategy*. Lagos: Wolex Publication Limited.
- [15] Reynolds, A.A. (2017), *The Significance of Pictogram and Icons for Early Childhood Education*. London: West Ham Communication Limited.
- [16] Wilson, G.K. (2016), *Instructional Pictures in the Classroom*. USA: MLS Printing Press.