

**Developing and Evaluating Instructional Resources for  
Enhancing Object Recognition among Primary School Pupils of  
Lemu L.G.E.A Primary School Samaru, Zaria.  
Kaduna State.**

*By*

**Abdullahi Abubakar Yunusa**

**Faculty of Education,**

**Department of curriculum studies and Educational Technology,**

**Usmanu Danfodiyo University, Sokoto.**

*abdulyunus2000@yahoo.com*

**And**

**Umeh Roseline Omosi**

**Faculty of Education,**

**Department of Educational Foundations and curriculum,**

**Ahmadu Bello university, Zaria.**

*rosehenry2k4@yahoo.com, 08188804084, 08036855717.*

## ***Abstract***

*Instructional media (instructional materials) are essential requirement for successful teaching, at college and university, student teachers are required to learn how to make and use simple and cheap instructional media (instructional materials). This is an account of the Design and development of instructional graphic resources for teaching alphabets and recognition of objects. The materials developed were tested at Lemu LEA Primary School, Samaru, Zaria. The population of the study was primary two (2) pupils of the aforementioned school. The class was 66 pupils out of which 20 pupils were selected using random sampling technique. A questionnaire was prepared for the class mistress who duly responded. It follows therefore, that the research instrument used are, questionnaire, interview and observation, while interviews and observation, were adopted for the pupils, simple percentage was the statistical tool used for the analysis. Results revealed that: the instructional resources designed met principles of design and elements.*

## **Introduction**

Instructional graphics can be defined as the pictorial expression of content designed to promote learning and improve performance in work setting (Association for programmed learning and education technology, 1972) it is a means by which clear description or highlight of an instructional content/item is presented to the target audience or learners. This has to do with posters, photography, motion pictures, paintings, artwork, road signs etc. they are very important in teaching and learning situation because they facilitate the direct association between words and the object they represent (Jacob, 2010). They help to vividly illustrate meanings of things because they are associated with the materials used by the teacher to improve the quality of his teaching. one of the specific ways educational institutions can contribute to societal evolution and development is to indigenise human and material resources for educational institutions” (Gbodi, 2006). The process of creating instructional graphics consist of determining the content and goals of lesson, features of the visual and characteristics of learners. The steps taken in production of the graphic materials for this study entails; acquiring the drawing materials, sketching the drawings, layout of the drawing, developing and labelling. The significance of this study is to test the potency of these materials in terms of practical application in a classroom situation. The university of Saskatchewan (1998) outlines the following implicit advantages of instructional graphics in achieving set learning goals these includes: attracting attention ,developing interest ,adjusting the learning climate and promoting acceptance (of an idea). These values the study seeks to achieve .It has also been established by various researches; that the use of graphics enhances teaching and learning; giving credence to the cliché that” A picture is worth more than a million words”.

## **The Problem**

“The first principle of the design of instructional graphics is this: There are times when pictures or illustrations can aid learning and times when pictures do not aid learning but do no harm, and times when pictures do not aid learning and are distracting “this is an underlying philosophy of instructional graphics and instructional technology. This philosophy is very important as it sets the tone and guides every attempt at designing graphics when the purpose is to guide, aid, enhance or support learning (Rieber, 2004).

This is true because research efforts overtime has shown that instructional delivery failed to achieve the desired objective because of wrong use of media, or misapplication of instructional media. The mis-use of media could be as a result of: lack of adequate knowledge of the instructional materials by the teacher, wrong application of the materials, Material or media not been relevant to the content of the lesson, Failure of the material to stimulate interest of the learners(pupils)and when the material is over utilised, that is, forcing the media to serve a purpose it cannot normally serve (Abimbade,1999).In another vein, Teachers do not give much thought to prior planning and thus produce materials that are unorganised and in- effective(Gbodi,2006) Moreover, Azikiwe (2007) and Denga (2001)assert that many Nigerian teachers lack the initiative to explore and mobilize local resources towards teaching and learning of their students, whereas Hull and Skinner(1964) opine that a learner learns better if he is motivated through the use of instructional media.

Against this background; arose the need to carry out this study; to explore and expand the horizon of knowledge in understanding the processes involved in designing and developing instructional materials. In light of the foregoing; the following question sufficed; Are the choice of colours, on the instructional materials developed appropriate? Is the

illustrations visible (in terms of the basic elements of design; size, shape, texture, line, form and pattern) enough to the learners? How proportionate is the drawing to the surface provided? Which is the dominant aspect of the illustrations? What are the goals the instructional materials are designed to be achieved? e.t.c.

## **Study Objectives**

The study is anchored on the following objectives:-

1. To find out the level of awareness in terms of the need to use instructional materials by the teacher in a public primary school.
2. To ascertain the effectiveness of the instructional materials designed and developed.
3. To assess the extent to which instructional materials are used in Lemu LGEA primary school, samaru, zaria.kaduna state
4. To evaluate the effect of the instructional materials on learners identification and retention of objects.

## **Methodology**

At this level the method of selecting the materials, population for the study ,sampling and sampling technique is highlighted.

## **Population**

The population of our study is the primary two (2) pupils of the Lemu Local Government Authority (L.E.A) Primary School, Samaru, Zaria Kaduna state. The class has a

population of sixty-six (66) pupils, thirty-two (32) males and thirty-four (34) Females, while the class mistress is the sole respondent to the Questionnaire developed for the teacher.

### **Sample and Sampling Techniques**

**a). Drawings :-** From a pool of thirty-nine (39) instructional graphic materials, eight (8) drawings were randomly selected using simple systematic random sampling technique; i.e. taking out the illustrations one after the other in two groups of four. Out of which four different posters were chosen for the study (see appendix ).

**b) Pupils:-** From a population of 66 pupils, 20 were drawn using systematic random sampling technique; i.e. the 20 pupils were drawn by using the class register and picking a name after every three names counted until the 20 earmarked for the study was arrived at, this is in keeping with sampling size, principles. According Gay, (1987) for a descriptive research, a sample of the population is considered minimum. As such; it follows that any proportionate number taken as a sample from a given population is representative of that population.

### **Instrumentation**

Three-way approach was adopted to gather the relevant data needed for this study namely; Questionnaire, Oral Interview and Observation. This was done in two stages:

#### **Draft and Development of the instrument(s):**

The group drafted the Validity Instrument For Instructional Materials (VIFIM) (i.e.; questionnaire and structured questions for the pupils), it was then assessed and necessary corrections made to suit the cause of study by a specialist in educational graphic design. Consequently, the validity and reliability of the instrument were certified.

## **Administration of Instrument**

With all the necessary tools (such as; the introductory letter to the study area, the illustrations, the Questionnaire, and writing materials ) needed to carry out the study in place, the group went straight to the study area (Lemu L.G.E.A. primary school, samaru, zaria). The first point of contact was the head teachers office. At the front office is the deputy head teacher, who turned out to be a lady, she ushered us to the inner office which serve as the head teachers office, the head teacher received us warmly, after introducing ourselves, he was given the letter seeking the assistance and cooperation of his office towards the cause of our study, he gladly accepted and granted our request and offered the option of using primary one or primary two, the option for using primary two was overwhelming because of their chronological , mental age and seemingly physical ability over the primary one pupils. the head teacher then lead us to the primary two class mistress who was very warm, receptive and lend her support in sampling and controlling the pupils, she offered the class register and clarified names that were not easily readable. The instruments were administered as the group worked mutually the outcome of which is this report.

## **Data analysis and discussion of findings**

This section discusses the responses gathered from the pupils item by item to provide the basis for the judgement that was arrived at. This discussion is preceded by statistical analysis using the simple percentage as the main statistical tool.

## Analysis of Biometrics

**Table 1. Sample distribution according to gender**

Gender	Number	Percentage (%)
Male	10	50%
Female	10	50%

The sample population used is evenly distributed i.e. ten (10) boys and ten (10) girls.

**Table 2. Sample age distribution**

Age Interval	Frequency	Percentage (%)
1-6	01	5%
7-12	12	60%
Unknown Age	07	35%

The table above indicate that only 5% of the respondent is below expected age, 60% are within the official age, and 35% do not know their age, the implication is that a good number of the pupils gave us reliable information

### **Item Analysis of pupil's responses:-**

**Table 1: Questions relating to number of objects that can be recognised on the poster**

Responses	A- Illustration with one	B- illustration with More



	image	Than 5 images.
Frequency	15	05
Percentage (%)	75%	25%

From the table above, 75% of the pupils identified the illustration with one object correctly, also 25% identified illustration with more than five objects accurately, and thus 100% of the pupils were able to identify the number of items on the poster correctly. The inference is that; the posters depicted the contrast of size, shape, form, colour, line, space, texture and pattern which are elements of good design.

**Table 2: Questions on whether they have ever seen any of the objects on this poster?**

Responses	Yes	No
Frequency	19	01
Percentage	95%	5%

From the table 2 above indicating 95% of the pupils have seen at least three of the objects before, while 5% could not recognise any of the objects .This implies that the posters had representative features and the respondents had a previous knowledge.

**Table 3: Questions relating to naming the object (s) identified**

Responses	Correct Naming	Wrong Naming
Frequency	18	02
Percentage	90%	10%

From the table3 above, 90% of the respondents were able to mention the names of the objects on the poster while only 10% were unable to name any of the objects. This indicates that the pictures were probably clear enough and are identifiable

**Table 4: Question relating to mentioning two uses of the objects**

Responses	Two(2) Uses	One (1)Use	None
Frequency	08	08	04
Percentage	40%	40%	20%

The table 4, above shows that 40% of the pupils were able to give two uses of objects identified, also 40% were able to give a correct use of the objects on the poster which implies consistency and validity of the instructional materials and reinforces the fact that the pupils had experiences about the object (s).

**Table 5: Question relating to colours that can be seen on the illustration**

Responses	One (1) Colour	Two(2)Colours	None
Frequency	08	10	02
Percentage	40%	50%	10%

The table 5, above shows that 40% of the respondents identified atleast one colour from the posters, and 50% of them two colours from the poster, While 10% could not name any colour, impliedly most of the pupils know colours.

**Table 6: Question in relation to the colours the pupils like most about the illustrations (Pictures)?**

Responses	Brown	Yellow	Red	Green	Blue	White	Black	Orange	None
Frequency	02	02	06	01	02	01	01	02	03
Percentage (%)	10%	10%	30%	5%	10%	5%	5%	10%	15%

The results from the table 6 above, indicates that the most appealing colour to the respondents is the Red colour,30% picked red as their favourite,10%,prefer brown colour,10%yellow,10% blue 10%,orange,5% green ,5%white,5%black,while 15% of the respondents couldn't make a choice of favourite colour from the poster, this means that the instructional material with red colour, which is a primary colour attracted more attention.

**Table 7: Question in relation to favourite colour?**

Responses	Yellow	Red	Green	Blue	White	Black	Orange
Frequency	02	11	07	00	00	00	00
Percentage%	10%	55%	35%	0%	0%	0%	0%

The table7 .above shows that 55% of the pupils likes red colour the most, 35% likes green colour, while 10% prefers yellow. Impliedly those who identified with red colour on the poster have a strong passion for the colour



Percentage	5%	5%	25%	30%	20%	15%	0	0	0	0	0	0	0
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Table 8 above, indicates that 30% of the pupils that likes red colours are females while 25% of the pupils that likes red colour are males, suggesting that red colour has more feminine appeal. Also, 20% of the pupils who are males likes green colour the most, while 15% of their female counterparts likes green colour, 10% of the pupils chooses yellow as their favourite colour, the implication of these is that; even at the tender age the pupils could make Choices from colours. thus confirming the position of Denise (1999) who held that graphics provide the most creative possibilities for a learning session as students have a more positive classroom experience.

**Table 9. Indicating the Questionnaire Items and responses of the class teacher**

S/No	Items On The Questionnaire	Class Teachers' Responses	Remarks
1.	<i>Qualification/Subject taught</i>	<b><i>N.C.E/Mathematics, Social Studies Creative Arts and Writing.</i></b>	<i>She is the sole respondent to the Questionnaire</i>
2.	<i>Gender</i>	<b><i>Female</i></b>	
3.	<i>Do you know teaching Aids?</i>	<b><i>Yes</i></b>	An affirmation that she is familiar with teaching

			aids
4.	<i>Can you recognise the materials as teaching aids</i>	<b>Yes</b>	She identifies it correctly
5.	<i>What category of teaching aids are these?(a)projected (b)Non-projected (c)Prints (d)Non-prints (e)No idea</i>	<b>(b)Non -prints</b>	Her choice is wrong suggesting she may not know the classification of instructional materials
6.	<i>What is your rating of the size(s)of the objects (a)very Good (b) Good (c)average (d)Poor</i>	<b>(a)Very Good</b>	This choice implies that the elements of size and proportion may have been satisfied by the graphic materials
7.	<i>How would you rate the illustrations in terms of clarity?(a)very good (b)Good (c)Average (d)fair (e) Poor</i>	<b>(a)Very Good</b>	This suggests that the illustrations are very good for class room instructional purposes
8.	<i>How clear and legible are the Letterings?(a)Very Good (b)Good (c)Average(d)fair(e)Poor</i>	<b>(a) Very Good</b>	With respect to the labelling around the objects, the rating implies satisfying the basic element of clarity and legibility
9.	<i>What colours appeal to you most? List according to</i>	<b>(i)Green</b> <b>(ii)Black</b>	This indicates that Green

	degree of preference.....	<b>(iii)Yellow</b> <b>(iv)Blue</b>	colour is the most appealing to the class teacher followed by the others.
10.	How often do you use Teaching aids For your lessons (a) Very- Regularly (b) Regularly (c) Occasionally (d)Not at all	<b>(c)Occasionally</b>	This reinforces the position that teachers are not inclined to using instructional aids, as much as expected thereby limiting the success of instructional delivery in the class
11.	How would you rate the illustrations generally? (i)above A-70%(ii)B- 60% (iii) C-50% (iv)D-40% (v)below 40%	<b>(ii)B-60%</b>	The respondent rating of the instructional materials as Good (B-grade) suggests the aids are good enough to be used for teaching

**Class teacher's comment:** *“Instructional aids simplify teaching and facilitates learning.*

*For a class of this kind; it is important to always use teaching aids that are designed with attractive colours.”*

### **Observation(s)**

In the course of the entire exercise, the following observations were recorded:

(i)The presence of the study group and the activity presented to the pupils elicited excitement and attracted the desired attention from the pupils. According to Ajayi and Salami, (1999) the integration of media into the process of education has had profound effect on the performance of the teacher and achievement of the behavioural objectives of the pupils.

(ii) Some of the pupils in attempt to identify the number of objects on the instructional materials, counted the captions as objects because those typefaces were about the same size with the objects. The implication of this is that; in designing graphic instructional media care must be taken not to include things around the message that could distract from the specific objectives of the graphic materials.

(iii) It was also observed that, some of the pupils could not tell one type of colour from another (they seem to be colour-blind) as they could only identify only one colour repeatedly.

(iv) Most of the colours identified by the pupils were their favourite colours, indicating that perhaps they were attracted by colours that they like most.

### **Recommendation/conclusion**

Poor academic performance in examination at all level of our education has been a matter of concern to all stake holders, several studies, research, seminars, symposia, have been organised to look into the problems (yusuf, 1994). The result of this study reveals that among other factors teaching could be enhanced through the use of appropriate instructional media, as their uses improve the quality of instruction (Agun, 1982). Ajayi and salami (1999) posits that; educational media possesses the quality of influencing the psychological, motivational and structural position of the learners. It aids the achievement of any one of the following in the teaching/learning process: Attention and Motivation, Active participation and response, orderliness in the classroom, Recall and Remembering, Guidance and Evaluation. It is on this premise therefore that this study has the following recommendation to make:

1. Learning resource centres should be setup at local government and primary school levels where instructional graphic materials for all subjects could be produced.



2. All tiers of educational authority should provide schools with these materials that ease the burden of teaching and learning.

3. Teachers should ensure that proper use of instructional media has immeasurable benefit in teaching and learning. Teachers should not rely on words only to explain ideas, facts and concepts. The use of instructional resources makes teaching both lively and interesting to the students.

The instructional materials used in this study have satisfied the minimum requirement for the use of instructional graphic designs in teaching and learning process. The study reveals that it stimulated the interest of the pupils and made learning experience meaningful, therefore provision of such materials in variety is essential for a successful teaching and learning to take place.

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