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Effect of Instructional Materials on Learning Transfer and Academic Performance of Primary School Pupils

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ABSTRACT

This study examined the effect of instructional materials on learning transfer and academic performance of primary school pupils. The study adopted a descriptive survey research design and focused on public primary schools in Nkanu East Local Government Area of Enugu State. The population comprised primary school teachers, from which a sample of 100 teachers was drawn. Primary data were collected using a 35-item structured questionnaire designed to elicit teachers' perceptions on the use of instructional materials in the teaching–learning process. Data collected were analyzed using mean scores, with a criterion mean of 2.50 used for decision-making. Mean scores of 2.50 and above indicated acceptance, while mean scores below 2.50 indicated rejection of the items. Findings of the study revealed that the effective use of instructional materials significantly enhances learning transfer and improves pupils' academic performance at the primary school level. The results further showed that instructional materials promote better understanding of subject matter, sustained interest, and application of learned concepts across learning situations. Based on these findings, the study concluded that meaningful realization of primary education objectives largely depends on the consistent and appropriate use of relevant instructional materials during classroom instruction. The study was anchored on Jean Piaget's human cognitive development theory, which emphasizes active learning and the role of concrete experiences in knowledge acquisition.

1. Introduction

The fact that primary education plays a pivotal role in the academic success or failure recorded at the other layers of education, namely, secondary and tertiary, is not contested. The Nigerian Government is aware of this fact, and this is why it initiates programme like UPE and UBE to promote effective realization of primary education objectives, in view of the fact that the major stakeholders in the primary education projects. Like parents and teachers continue to rate the quality of education at this level as poor, there is an urgent need to initiate concrete steps to raise the standard of teaching- learning at the primary school level.

The question is; To what extent can the use of instructional materials in the teaching-learning process raise the quality of education at the primary school level? What effect will the use of instructional materials in the teaching-learning process have on primary education?

The main purpose of this study is to ascertain the effects of instructional materials in the teaching-learning process at the primary school level.

The specific objectives of the study are the following;

1. To ascertain if instructional materials can help the transfer of learning to take place among primary school pupils.

2. To find out the effect of the use of instructional materials in the teaching-learning process on children's academic performance or achievement scores.

In this study, instructional materials refer to those items that the teacher makes use of in the process of teaching in order to help the learner understand what he or she is teaching.

Aguokogbo (200) used the term curriculum materials because of the pivotal role they play in the realization of curriculum objectives. Instructional materials or aids are means to an end. The end here refers to the acquisition of knowledge, skills, competence, values, attitudes, etc by the learner. In other words, the teacher makes use of instructional materials (teaching/learning resources) to ensure that the goal of teaching, which is to help the learner acquire the relevant skills, knowledge, and competence needed to function productively and to adapt to a given environment, is achieved meaningfully.

Ughamadu (2010) classified instructional or curriculum materials into printed material, example textbook, journals, non- projected materials, example chalkboard, flannel board, projector, etc. He also classified them as audio materials or aids, for example, radio, audio tape, record player, visual materials or aids, such as picture charts, maps, real things, models, mock-ups, and audiovisual materials or aids example instruction or educational television.

The study is aimed at providing concrete and meaningful strategies to improve the quality of teaching and learning at the primary school level. In this study the role that instructional materials can play in this quest of enhancing effective teaching-learning at this level was explored. Additionally, parents, especially those whose wards are studying at the primary school level would be very happy if there is a noticeable improvement in the quality of teaching and learning at the primary school level.

2. Literature Review

The Federal Ministry of Education on quality assurance describes the learner as the centre or focal point of the educative process. To this effect, a teacher's competency test of effectiveness is measured by the teacher's capacity to produce desirable learning outcomes in the learners. To be able to achieve success in the education sector, there must be effective use of curriculum materials. Once this link is broken, Alio is of the opinion that the system is not complete, making the outcome of teaching-learning ineffective and un-productive. It is on this basis that quality assurance in the school system presently lay a lot of emphasis on the use of relevant instructional or curriculum materials in the teaching process.

The study on the role of learning resources in the school system, Nzewi (2007), summarized their importance as follows:

1. They make learning more permanent.
2. They facilitate the learning of abstract concepts or ideas. They help to concretize the concepts and by doing so stimulate the imagination of the students.

3. Curriculum (instructional) materials help to arouse and sustain the learner's interest on the learning task.
4. They provide experiences not easily obtained through other materials and contribute to the efficiency, depth and variety of learning.
5. They offer a reality of experiences which stimulates self activity on the part of the learner. Instructional materials keep the learner busy and active thereby increasing learner active participation in the teaching-learning process.

According to Okoli and Ezeanolie (2005) instructional materials:

1. Promote learner interest in learning. This means that it stimulates learner interest in the lesson being taught. Arousing learner's interest in learning is a necessary condition for learning to take place. This is why teachers are encouraged to practice set induction. If learners interested are aroused in a lesson, there is probability that learning will take place.
2. Curriculum materials help the teacher to communicate clearly and easily with the learner and interact with him. It is stating the obvious that learner achievement is predicted on effective communication by the teacher.

Instruction materials increase the retroactive memory of the learner. According to Ebenebe and Unachukwu (2012), a learner easily remembers information stored in the long term memory than those stored in the short term memory. This is because information stored in the long memory is internalized due to their association with concrete and memorable events.

Okoli and Ezeanolie (2005) are of the opinion that instructional materials stimulate self activity on the part of the learner. This is in conformity with the principle of active participation of the learner in the teaching-learning process. Continuing, Okoli and Ezeanolie (2005) stated that the use of instructional materials in the teaching learning process create avenue for critical thinking and objectivity of assessment of issues and problems by learners. They promote effective understanding and the employment of the five senses.

Two major features of the current 9-year basic education curriculum is learner centeredness and activity based. The National Education Research and Development Council (NERDC) that produced the curriculum pointed out that the main factor responsible for learner poor performance is the method of teaching adopted by the teacher. According to the finding, teachers lay emphasis on the traditional teaching methodology which is teacher centered.

In this teaching approach, learner's involvement remained minimal. To achieve progress in the teaching- learning process there should be a paradigm shift to the activity based curriculum which compels teachers to vigorously involve the learner in the process through the deployment of variety of teaching aids. The activity based curriculum is learner centered. The success or effectiveness of the teaching-learning process is dependent on the extent of learner achievement.

Commenting on the objective of primary education in Nigeria, namely: Laying of a sound basis for scientific and reflective thinking. Joseph (2006) noted that scientific thinking is the sequential organization of activities that normally lead to logical conclusion that are verifiable. The author went on to allude that if Nigeria can meaningfully initiate processes at the primary school level towards achieving this objective, it would go a long way to solidify the culture and enthronement of the study of science, technology and mathematics in Nigeria.

In doing this, Joseph (2006) insisted that the pupils should be exposed to sequence of scientific inquiry by being conversant with practical skills. According to him, the achievement of this objective will enable the learner to participate actively in scientific and technological development of the nation. He recalled the fact that the Federal Government promised to provide the relevant teaching and learning materials that must conform with the teaching method it designed for the primary schools, namely: practical based, Exploratory and Experimental. The author expressed disappointment that the Nigerian Government has not done much in the area of provision of instructional materials for effective teaching and learning at the primary schools.

2.1 Theoretical Framework/Foundation

This study is based on the social or observational learning theory of Albert Bandura and Jean Piaget Cognitive Development theory. Social learning theories propose that children learn through imitation or modeling on what they

see and hear other people say and do. Bandura uses the word modeling along with terms observational learning and vicarious learning that the child adds to his repertoire of actions by seeing or hearing someone else perform the behavior rather than by overtly manifesting the behavior himself. The models are classified as real life symbolic and representational. They are real life models when learning takes place from human beings or living creatures. The models are symbolic when pictures are used to present the learning content or task to the child while the model presented by television is representational.

As a result of Bandura's social learning theory, educationists (teachers) especially those handling children realized that instructional delivery becomes more effective when models are employed to teach than direct talking to the children. Following this discovery, teachers had to make use of learning materials that can attract children's attention and activate their five senses in the learning process.

Okoli and Ezeanolie (2005) highlighted the role of modeling as an instructional material as follows:

1. Models and mock-ups offer a kind of substitute for the study of real things.
2. They simplify complex objects and at times provide interior views of objects.
3. They serve to concretize an otherwise verbalized lesson.
4. They sensitize the learners so that they can effectively employ their sense of sight and touch simultaneously.
5. At times, they are more effective than reality.
6. They reduce or enlarge objects to observable sizes.
7. They help in portraying remote experience.
8. Students can produce some models or mock-ups at low cost for class use.

When models and mock-ups are used to illustrate things during a lesson, learners ability to internalize materials become permanent. This is because the learner forms a mental picture of what is being learnt as he reflects on the models and mock-ups being used to teach his class. According to the authors, if students did participate in the production process, the retention tends to be more permanent.

Teaching children relies heavily on observation, demonstration, experimentation, modeling and mock-ups etc. for the effective teaching and learning to take place.

In teaching at the primary level, the use of instructional resources to communicate knowledge is very essential. The trust of this study is to ascertain the extent that the use of instructional materials could affect the performance or achievement of pupils in the subject at the primary level.

According to Jean Piaget (1999), human beings undergo certain stages in the process of acquiring knowledge. The processes or stages are as follows:

i. Sensory motor stage
ii. Pre-operational stage
iii. Concrete operational stage
iv. Formal operational stage

In the first stage, sensory motor stage, the child's pre-occupation is to develop his five senses of hearing, sight, smell, touch, taste.

At the pre-operational stage (about 4-7 years) the child begins to decentralize his thoughts. Apart from self knowledge, the child notices the presence of other factors that equally exist and can also influence one's decision.

The third stage, concrete operational stage about (9-15 years and above) this is the stage that the child is confronted with school work. The child can only make progress in serious school work when the teacher displays concrete objects which the child can relate.

Odili (2001) blamed the poor achievement and performance of students in mathematics at the primary and secondary levels of education on teacher's unwillingness to make use of relevant concrete instructional materials in their teaching. Making reference to the concrete operational stage of child cognitive development according to Piaget, he emphasized that most children need the help of concrete objects to accompany their thinking. He stated that natural concrete objects have an appeal for the young students. The young students must be provided with something to see, touch and handle. Continuing, he suggested the need for adequate provision of materials in the classroom. He pointed out that if lesson is abstractly presented to the student at the level of concrete operational stage, little or nothing will be learnt. The relevance of the concrete operational stage of human cognitive development is the basis for the introduction of instructional materials in the teaching-learning process. A child that overcomes the concrete operational stage internalizes the basic learning concepts that will serve as the foundation of educational success at the formal operational stage.

3. Methodology

3.1 Research Design

The survey research design was used to execute this study. A survey research design is one in which a group of people or items is studied by collecting and analyzing data from only few people or items considered to be representative of the entire group. (Akuezilo, 2007). The researcher adopted this design because it is most appropriate for this study in view of its large population.

3.2 Sample and sampling technique

The sample size for this study is 100 teachers at the primary school level in Nkanu East local government area. The researcher got this sample size using the random sampling technique. Through this technique, the researcher initially resolved to select 5 primary school teachers from 25 public primary schools in Nkanu East LGA giving a total of 125 teachers. All the selected teachers were listed as respondents for this study. In selecting the sample size, the researcher ensured that they have homogenous characteristics. In other words, all the teachers are teaching at the primary school level in public primary schools in Nkanu East LGA. They were either male or female gender.

3.3 Population for the study

The population of this study is 350 teachers teaching at the public primary school level in Nkanu East Local Government Area. This comprised the male and female teachers. Teachers teaching in private schools were not part of this study group.

3.4 Instrument for data collection

The instrument used in collecting data for this study is the questionnaire. This is a structured questionnaire. It is formulated in line with the 4-point scale of Strongly Agree (SA)_4, Agree (A)_3, Disagree (D)_2, Strongly Disagree (SD)_1

This instrument was formulated by the researcher. It is made up of two sections, A and B. Section A is the letter of introduction requesting the respondent to help in filling the questionnaire form.
Section B is the main questionnaire items. It is made up of 35 items for the research questions, five items for each research question. The respondents were requested to tick (√) on any of the statements that represent their opinion.

3.5 Method of data collection

A total of 25 public primary schools were used for this study. The opinion of 5 teachers in each of the schools were sampled. A total of 125 copies of the questionnaires were sent out to the teachers. The researcher employed two research attendants to cover selected schools. The researcher received 100 copies of the questionnaire. this means that 25 teachers that initially collected the questionnaires forms failed to return their copies. It is these 100 teachers who served as the sample size of the study.

3.6 Method of data analysis

The mean scores of the respondents were computed and used to answer the research questions. A mean of 2.50 was taken as a criterion in line with the 4-piont scale. This means that any mean up to and above 2.50 was accepted to mean that respondents accepted the statement. On the contrary, a mean less than 2.50 was not accepted. This means that respondents did not accept the statement. A cumulative mean of the 5 items were computed to determine the respondents opinion on a research question. A cumulative (grand) mean of 2.50 and above was interpreted that majority of the respondents acceptance less than 2.50 was interpreted that majority of the respondents rejection of the statement.

4. Findings

4.1 To what extent could the effective use of instructional materials in the teaching-learning process promote transfer of learning among primary school pupils?

Table 1- Effects of instructional materials on transfer of lesson among primary school pupils.

N-100

Questionnaire items	SA	A	D	SD	X	R
11. Primary school pupils generally tend to internalize lessons that are meaningful and interesting to them.	20	50	20	10	2.80	
12. The use of instructional materials in the teaching- learning process raises primary pupils understanding of the lesson and ability to internalize it.	40	40	10	10	3.10	
13. Primary school pupils tend to exhibit the capacity to transfer learning that they internalized	50	20	20	10	3.10	
14. Instructional materials have the capacity to promote learner ability to transfer learning in their studies than lessons done theoretically.	30	40	20	10	2.90	
15. There is no significant effect of the use of instructional materials in the promotion of learner transfer of knowledge.	0	0	50	50	1.50	
X					2.68	

As recorded on table 1, a mean of 2.80 was recorded for item number 11. This means that majority of the respondents accepts that statement to be correct.

In the same vein, a mean of 3.10 was recorded for item number 12. This also means that most of the respondents accepted item number 12 to be a correct statement. However, a mean of 1.50 was recorded for item number 15. This means that many of the respondents rejected item number 15.

A cumulative mean of 2.68 was computed for items 11-15 on research question 3. This means that the use of instructional materials in the teaching-learning process at the primary school level influences the transfer of knowledge among the pupils.

4.2 What role does the effective use of instructional materials in the teaching-learning process at the primary school level play in promoting high performance or achievement among the learners?

Table 2- Effects of instructional materials on pupil's performance.

Questionnaire items	SA	A	D	SD	X	R
16. Children generally do well in test and examination when the teacher taught them well.	20	40	20	20	2.60	A
17. The inclusion of the use of instructional materials in the teacher's note of lesson plan shows its importance in promoting effective use of instructional materials in the school.	30	40	20	10	2.90	A
18. Primary school achievement scores are greatly enhanced through the use of instructional materials in teaching.	40	20	20	20	2.80	A
19. Children not properly exposed to practical lessons tend to record poor achievement score in exams than their colleagues that had such privileges.	50	20	10	20	3.00	A
20. The use of instructional materials in the teaching –learning process does not have any positive effects on learner's achievement scores or performance.	0	0	60	40	1.60	
X					2.58	A

As recorded on table 2, a mean of 2.60 was computed for item number 16. This means that most of the respondents accepted that statement to be true. Similarly, a mean of 2.90 was computed for item number 17. This also means that the majority of the respondents accepted statement number 17 as true.

However, a mean of 1.60 was computed for item number 20. This means that most of the respondents rejected item number 20. A cumulative mean of 2.58 was computed for items number 16-20 on research question 4. This means that the majority of the respondents believe that the use of instructional materials at the primary school level increases academic achievement among the pupils.

At the end of data analysis, the following findings were made.

- Effective use of instructional materials in teaching-learning process at the primary school level influences the transfer of learning among pupils.
- Effective use of instructional materials in teaching-learning process at the primary school level influences high achievement among the pupils

5. Discussion

A cumulative mean of 2.68 was computed for items 11-15 on research. The study sought to find out respondents opinion on whether the use of instructional materials in the teaching –learning process can influence transfer of learning among primary school pupils. Transfer of learning is achieved when the learner can apply classroom knowledge outside the classroom in solving personal, societal problems.

In other words, transfer of learning implies the learner's ability or capacity to utilize knowledge acquired from the classroom meaningfully in providing solutions to societal problems. The mean value shows that most of the respondents accepted that the use of instructional materials has a positive influence on the transfer of learning among primary school pupils.

The finding has been supported by Onurah (2007). The study found out that for learners to truly internalize what they learnt at school to the extent that they can freely exhibit such knowledge, it is very necessary to make use of instructional media in teaching them.

The study found that effective use of instructional media in the teaching-learning process makes the lesson meaningful and stored in the learner's long term memory or sub-conscious. At this level of internalization, what was learnt becomes part and parcel of the learner.

A cumulative mean of 2.58 was computed for item 16-20 on the research objective which sought to determine whether the use of instructional materials in the teaching-learning process at the primary school level can have any effect on pupils achievement or performance in their studies. The computed mean value showed that the majority of the respondents believed that the use of instructional materials affects pupils achievement scores (performance) at the primary school level.

The finding has been corroborated in the chief examiners WASSCE report 2011 1nd 2013 respectively. The chief examiners report observed that candidate's performance in the WASSCE is influenced by how they were taught. According to the examiner's findings, candidates that were exposed to practical lessons through the deployment of relevant instructional materials tend to do better in their examinations than their colleagues that had essentially theoretical lessons. It is true that the chief examiners' report documented or studies how SSCE candidates responded to questions, the observation is also relevant to the primary school pupils. In the case of primary school pupils who are still operating at the concrete operational stage (according to Piaget's theory of human cognitive development). At this stage the human cognitive development, learning will be difficult if not carried out through the application of concrete objects that aid to teaching and learning.

6. Conclusion

This study examined the effect of instructional materials on learning transfer and academic performance of primary school pupils. Findings of the study revealed that the effective use of instructional materials significantly enhances learning transfer and improves pupils' academic performance at the primary school level. The results further showed that instructional materials promote better understanding of subject matter, sustained interest, and application of learned concepts across learning situations. Based on these findings, the study concluded that meaningful realization of primary education objectives largely depends on the consistent and appropriate use of relevant instructional materials during classroom instruction. The study recommends that the government should ensure that teachers recruited to teach at the primary school level have the skill to use and improvise instructional to raise the quality of their instruction. The limitation of the study was the difficulty experienced during the distribution and collection of the questionnaire. Some of the teachers in the sampled schools tried to frustrate the exercise. Some of them were unwilling to collect the forms, some who collected failed to return theirs. This affected the sample size of the study. The researcher received a total of 100 copies of the questionnaire forms out of the initial 125 sent out.

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