The Use of Instructional Materials at the Kindergarten Level to Help Children Own Their Own Knowledge

Justina Adu, Patricia Mawusi Amos & Theresa Antwi

University of Education, Winneba; Ghana

Abstract: The study sought to find the various instructional materials used at the kindergarten (KG) level; to ascertain the extent to which the materials are interactive and how often these materials are used in the teaching and learning process. Observation and interview were used in gathering data from 26 kindergarten teachers. It was found that KG teachers used variety of instructional materials; such as crown corks, sea shells, boxes and cans. It was also found that they often use the instructional materials during teaching and learning and that the materials are interactive due to the fact that it enables the pupils to understand a concept better. It is therefore recommended that teachers should endeavour to use other types of instructional materials such as audio visual aids to advance the teaching and learning process. Again, teachers should use variety of instructional materials and teaching methods instead of sticking to one particular material and process during teaching. Also, in-service training should be organised for teachers to enable them prepare appropriate instructional materials and also make an impact in the classroom.

Keywords: learning process, audio visual aids, training, organised.

Introduction

Pre-school Education, with reference to kindergarten education, until recently was not considered a part of Ghana’s formal education. However, following the recommendations made by the educational review committee, under the chairmanship of Anamoah Mensah in 2002, kindergarten has been made part of formal education in Ghana. Pre-school education in Ghana according to Sarpong (2006) is the kind of education that prepares children before formal schooling starts. This kind of education is very important in the life of every child because it is given in the formative years of the child when the brain is still developing and needs to be given a better start for the future well-being of the child. Most child psychologists pay great deal of attention to children at this level. This is because it is the most important period when humans (children) establish foundations for the various aspects of their developmental needs including physical, mental, emotional, social and intellectual developments which need not be taken lightly (Chutima 2005).

For the child to be able to develop properly, there is the need for pre-school education to give every child the opportunity to interact with his or her peers and also engage in a variety of activities to
help in the cognitive development of the child. There is therefore the need to use the right instructional materials that will meet the needs of each child in order for them to develop properly. Instructional materials according to Nkuuhe (1995) are all the devices and materials used in the teaching learning process. According to Talabi (2001) there are various types of instructional materials and most teachers make use of them in order to achieve their objectives and also for concepts to be concretized in the mind of the child. Many researchers have identified various instructional materials used by many teachers, these includes chalkboard, charts, real objects, slides, books, models, printed materials and so on (Onasanya 2008, William 2003, Aila 2005, and Kadzera 2006). Instructional materials are seen as very important in the teaching learning process and according to Onasanyo (2008), instructional materials stimulate learning, provides concrete basis for conceptual thinking, motivate learners to learn and captures their imagination if used correctly (Ajalla, 1997).

According to Seefeld (1984), for learning to take place both teachers and children must make very good use of instructional materials. He further indicated that learning best takes place when learners are allowed to manipulate and interact with instructional materials. Instructional materials therefore provide a lot of first hand experiences which are developmentally appropriate and help children to acquire symbolic knowledge which helps them in their learning experiences (Akinola 1988). Talabi (2001) views instructional materials as objects generally designed to provide realistic images and substitute experience to acquire knowledge. Researchers have also shown that an interactive learning environment can generate effective instruction and learning (Shinde 2003). Furthermore, Rochelle et al (2000) also stated that research has indicated that learning is most effective when characterized by active engagement, participation in groups, frequent interactions when feedback is provided and connections to real world contexts are made. Thus implying that learning best takes place where there is interaction and a positive feedback.

There are lots of benefits from the use of instructional materials and so most teachers try as much as possible to use appropriate instructional materials in order to bring to bear what is being taught for children to understand.

According to some teachers in the Efutu Municipality, they know of the importance of the usage instructional materials but they only make do with what is available. This however, may not be sufficient enough to lay a good foundation for the child at this level and may cause the child to lack certain basic concepts which he or she is supposed to acquire before starting formal schooling. This is because according to Ogummilade (1984) the proper selection and usage of instructional materials with adequate and comprehensive planning is needed when teaching, and this

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includes knowing the type of audience one has, their culture and the environment in which they live. From this statement, it can be well noted that instructional materials must not just be used but must be used appropriately.

The main issue is that teachers probably lack knowledge and skills in using instructional materials to facilitate the learning of children in order for them to discover new concepts and also help them develop their own knowledge through the manipulation of the instructional materials.

Another observation is that some of the instructional materials used by the teachers might not be of different varieties enough to meet the needs of all the children and this limitation may prevent children from discovering and creating their own knowledge and concept to help them understand what is being taught. Various researchers such as Adeyanju (1996), Akinola (1988) Adeyanju (2001) in Africa have carried out studies on instructional materials and came out with their findings; it seems there is dearth of information on the use of instructional materials to help children discover their own learning at the kindergarten level. There is therefore an urgent need to investigate on what exists in the kindergarten classroom today in Winneba at the Effutu Municipality.

Instructional materials are the most important tools in the teaching and learning process. Effective teaching at the kindergarten level depends much on the varieties, availability and use of instructional materials, hence, the purpose of the study is to investigate the various types, skills and use of instructional materials at the kindergarten level.

This study is very important because it will throw more light on the appropriate use of instructional materials and encourage teachers to consider taking pupils through various stages of learning discovery activities that will help pupils to understand what is being taught.

**Research Questions**

1. What are the various types of instructional materials used at the kindergarten level?
2. To what extent are the instructional materials interactive?
3. How often is an instruction material used in each section of teaching to help children own their own knowledge on a concept being taught?

**METHOD**

Ethnographic techniques were employed for this study and guided by Jerome Bruner’s (1966) study of intellectual development which states that “Children progress through three stages in their learning. These stages are Enactive stage, Iconic stage and Symbolic stages”. According to this theory the enactive stage is where the child is given the opportunity to interact and manipulate concrete objects (instructional materials) which helps them identify and understand concept, perform their own task and come out with their answers. This gives them the opportunity to increase their intellectual
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potency and own their own knowledge to solve other problems using the same concept. The second stage which is the iconic stage, gives children the opportunity to observe pictures and objects which help create visual images on their memory. According to Bruner (1966) as cited by Sperry Smith (2001), both concrete and pictorial stages must be nurtured before moving to the symbolic stage for the pupils to understand the concept being taught. The third stage which is the symbolic stage, basically deals with abstract and verbal symbols which help children to acquire knowledge in words in their memory to help develop their vocabulary. This study is applicable to Bruner’s theory, in the sense that teachers use instructional materials to facilitate learning through these three stages. This is because as they engage themselves in the manipulation of the instructional materials they discover and invent things which are more easily recalled and remembered (Kellough, Carin, Seefeldt, Barbour & Souviney 1996) and this knowledge can be applied in other situations to solve problems. This theory of learning will help the child to create and define their own concepts which will give them a better understanding of what is being taught.

The study was conducted in Winneba, a sub-burb of the Efutu Municipality of the central region of Ghana. Twenty-six government kindergarten classrooms which comprised of kindergarten one and two were visited and observed. Teachers from these classrooms were identified, observed and interviewed. Researchers spent time during school hours to observe the type of instructional materials and how they were used to facilitate learning. During the period of data collection, the researchers booked an appointment with teachers and interviewed them during the break periods. The data was analyzed based on themes that emerged from the observation and interview protocol.

RESULTS
This section of the study is devoted to the observations made in the classrooms and views from the teachers. The aim of the study is to investigate the use of instructional materials to facilitate learning at the kindergarten level to help pupils to own their own knowledge. The themes that emerged were as follows:

The types of materials used at the kindergarten (KG) level
Teachers in the various KG classes in the Winneba Municipality were visited and observed with regards to the types of instructional or teaching and learning materials they use in the classroom. From the observation, most of the classes have ‘already made’ materials. Some of them were cut out shapes, number and alphabet chart, weather chart, fruits and vegetables chart and shells painted with assorted colours. The others are numerals and alphabets, mats letter cards and picture books. The improvised ones were as follows: crown corks, sea shells, cans, boxes and chewing sticks. These had been carved into shapes and others used
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as counters. It was noticed during the observation that some schools had a lot of instructional materials while others had few. It was also noticed that due to the limited number of materials they possessed effective teaching was inhibited.

Another theme that emerged was how often instructional materials were used in each session of teaching.

During the teaching and learning process, it was observed that most of the classes used teaching and learning materials often. This was due to the fact that at this stage children learn better with visuals and physical materials. It should be added that most of the materials used were the charts which were common in the classroom as compared to the other instructional materials such as real objects, models, audio aids, audio visual aids and others. Nevertheless, we observed some teachers who were using the pebbles, sea shells, cans and crown corks for other lesson activities. Here is an excerpt of the extent to which some teachers use the teaching and learning materials.

**Excerpt 1:**

Subject: Environmental studies  
Topic: Caring for the teeth  
Materials used: A chart showing the human teeth  
Activity: Introduction-The teacher introduced the lesson by asking pupils to mention some of the activities they do in the morning before coming to school. The common response was “I clean my teeth”.

Lesson: The teacher brainstormed pupils with regard to the things they use to clean their teeth. The teacher posted the chart showing the various items used to clean the teeth on the chalkboard to the eye level of the pupils and to the advantage of all the pupils.

She then guided pupils to mention some of the items displayed on the chalkboard. The teacher also presented some real materials of the items used in cleaning the teeth to the pupils and asked them to mention the names of the real objects or items.

The teacher concluded the lesson by asking pupils to draw any of the items they use to clean their teeth at home.

**Excerpt 2**  
Subject – Mathematics  
Topic – Shapes  
Materials – a stencil of shapes, cut out pieces of shapes, six shaped geometric boards  
Introduction – Teacher asked pupils some shapes they already know. Pupils mentioned circle and square.  
Activity – Teacher then mentioned six shapes pointing to them on the board and also displayed them to children by lifting them up. She then mentioned them one after the other whiles the children pronounced the shapes after her.  
Teacher paired the children and tasked them to fix the shapes in the geometry board. She encouraged them to mention the names while they fixed them into the board.
Instructiveness of the instructional materials used

On the issue of how interactive the instructional materials are used; it was observed that teachers were able to use the materials to explain the concept they are teaching and were able to use it appropriately. Pupils in turn used the materials during hands-on activities. For instance, they fixed the carved shapes into the stencil or the geometry board. Again, during counting, addition, and subtraction, pupils used bottle tops, sticks, and sea shells. This implies that the instructional materials seen and used for teaching in the schools visited were very interactive.

Following the observations in the various classrooms, the researchers interviewed the teachers.

The responses of the teachers reflected the following: From the interview, some of the teachers said they use various types of instructional materials, such as charts, chalkboard, toys, some real objects, counters, models, and pieces of sticks and so on. In fact, the type of instructional materials used depended on the lesson to be taught. Teachers said they knew they could not teach at this level without instructional materials and this obviously made them use the materials every time they taught. A teacher had this to say:

“I know the importance of using instructional materials at this level but I don’t have a variety of them so I make do with what is available. Basically I use charts”.

Form the various types of instructional materials teachers use, it appears that most of the materials used at this level are visual materials and this is due to the fact that they are the most available material they can lay hands on.

When teachers were asked why they use instructional materials, they said the materials make their lessons interesting, attract the attention of the pupils, help the pupils to understand the concept they teach and help pupils to participate in lessons effectively. It also appears that teachers found instructional materials very useful but were not interested in the stages of learning. A teacher had this to say about this.

“The use of instructional materials make my lessons very effective in the sense that the presence of the materials attracts their attention, gives them the opportunity to participate in the lesson and at the end they grasp the concept being taught. The most important thing is being able to use materials that will help the pupils to understand what is being taught.”

On how long pupils were made to manipulate the instructional materials to meet their individual needs; teachers said they use materials which made children observe and derive meaning for themselves. These materials are counters, real objects, and models which allowed for hands-on activities making the lesson very interactive. One teacher noted:

I try as much as possible to make my lessons more interactive by giving my pupils
According to Seedfield (1984) children learn best when allowed to manipulate and interact with instructional materials, this agrees with this study in the sense that most teachers made their lessons interactive where the children were taken through hands on activities. This interactive process also helps the children to manipulate the instructional materials to come out with their own answers. Most children unfortunately did not get the opportunity to take part in the lesson because the materials were not enough in the classroom. This can inhibit the learning of other children with different developmental levels and abilities.

How often instructional materials were used in a lesson most of the time depended on the lesson being taught and the materials available. Most teachers were found either using the materials throughout the lesson or at a stage in the development of the lesson. It must be noted that the instructional materials were used according to what was available and the demands of the lesson but not to the needs and developmental level of the children.

The guided theory of this study indicates that children progress through three stages in learning. The findings from this study has clearly indicated that pupils most of the time were taken through two stages which is either the enactive stage and the abstract stage or the iconic stage and the abstract stage. This shows that the teachers might lack the knowledge of Brunner’s theory or might not have enough instructional materials and therefore may
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not be in a position to take the children through the three stages during teaching. This might not help meet the developmental needs of all pupils in a particular class.

CONCLUSION
It was realized that in all the classrooms visited, teachers could not teach at this level without an instructional material and so used some kind of instructional material whenever they taught. Those who used a lot and a variety of materials during teaching had their pupils’ attention and involvement in the lesson. Most of the materials used were text books, teacher’s guides, reading materials, book charts, a few real objects and some improvised materials.

It was also observed that some of the materials used were interactive as both teachers and children were found manipulating some of the instructional materials in order to understand the concept being taught and come out with their own answers. These materials were sometimes not enough for all the children when it came to hands on activities.

It was also observed that all the materials used were most of the time visual materials, without making use of other materials such as the audio and audio visual materials such as radio, video or television which could have been used to help understand some concepts better as well as help make use of other senses. It is recommended that teachers use other types of instructional materials such as audio and audio visual materials in their various classrooms as this will enhance their teaching and learning process to meet the developmental level, ability and needs of all the children in their class. It is also suggested that most teachers should use varieties of instructional materials in a particular lesson in order to help children in their class grasp the concept being taught. This is due to the fact that we have different children with different needs, developmental abilities and who may lack interest in only visual materials but other materials such as real objects together with the visual materials will help develop their interest and make the learning complete. This will give the children the opportunity to acquire and construct their own knowledge.

It was found that children were taken through only two stages of Bruner’s discovery learning theory at a time. Teachers most of the time used the enactive and abstract stage or the iconic and the abstract stage at a time. However, there is the need to encourage teachers to use other varieties of instructional materials in their teaching which will ensure taking the children through the enactive stage, iconic and the abstract stage of discovery learning.

It will therefore be suggested that teachers are given in-service training on Bruner’s discovery theory so they will include it in their lesson presentations as this will help children to think, understand and come out with knowledge and concepts which they will own for a life time. This will help the teachers to plan and prepare
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appropriate materials according to the individual differences of the child.

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