

A Book of Reading in

INSTRUCTIONAL PEDAGOGY



**School of Science &
Technology Education,**
Federal University of Technology,
Minna, Niger State.

A Book of Reading in Instructional Pedagogy

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Chapter 1

Alternative Sources of Instructional Materials for Effective Teaching and Learning

Chike-Okoli, Chibuogwu Felicia

&

Tafida, Amina Gogo

Learning Objectives

At the end of this chapter, the reader should be able to:

1. Explain the concept of instructional materials
2. Outline seven benefits of instructional materials in education
3. Discuss the qualities of instructional materials
4. Mention and discuss alternative sources of instructional materials
5. Outline five considerations in selecting instructional materials
6. Discuss the challenges of sourcing for alternative instructional materials

Introduction

In almost every instructional process, there appears to be an innovative need of instructional materials. The main purpose of every instruction is to bring about a permanent change in the behaviour of learners in a desired direction. The conventional instructional process where the teacher is the sole source of knowledge does not help to give learners the desired knowledge. The changes brought about by technological innovations which are directly and indirectly influencing and changing the way people learn and also redefining literacy have made a case for supporting instruction with materials that can influence learning positively.

In a conventional teaching and learning situation, which often lacks motivation, it is difficult to achieve effective transfer of knowledge by teacher dominance of

the learning process. Learners are not considered very important stakeholders in that type of process. Therefore, in order to enhance the quality of instruction, the teacher needs to source for, evaluate and select instructional materials that can meaningfully engage learners in order to produce a more effective lesson delivery. Teaching can be made more effective and students' learning more exciting when instructional materials that make learners active participants in the learning process are appropriately selected and utilized. Such instructional materials include concrete materials that can be manipulated in such a way that learning becomes more practical and experiential than theoretical or abstract. Thus, they ease, improve, encourage, motivate and promote teaching and learning activities. Apart from the conventional materials commonly used in the classroom, like textbooks, workbooks, book pictures and writing materials, e.g., pens, pencils and boards, there is need to involve alternative materials made available by modern technology in knowledge impartation.

Despite the challenges of providing instructional materials as a result of financial constraints or lack of training and expertise or experience on improvisation, there are alternative sources available for teachers especially in language teaching. This brings to focus the need to ensure that only materials that can promote the desired learning are carefully selected and used. This chapter therefore focuses on sourcing for instructional materials for active and intellectual engagement of learners. This is in line with constructivism approach which advocates that learners should not just sit and listen, but should rather be involved in activities that will enable them construct their own knowledge.

Research studies have shown that students' academic performance in various subject areas depends on a variety of factors. In English language, for instance, a number of factors have been identified as being responsible for poor performance. Among such factors are poor teaching methods (Isiugo-Abanihe, 2002) and lack of modern language learning facilities (Kolawole & Olatunji, 2006). These authors are aware of the importance of instructional materials in the language classroom which can be used to improve reading, writing and speaking skills of learners.

Furthermore, reading comprehension problems in various subject areas including English language have been attributed to teacher reliance on the conventional teacher-dominated teaching strategy which relegates active involvement of learners in learning activities, including the use of quality instructional materials, to the background (Chikwendu, 2016). Aside textbooks, many teachers do not often employ adequate illustrative materials during

instruction but rather depend heavily on pictures and illustrations in textbooks. Thus, instructional materials do not form a significant part of the learning process. There is, therefore, need to source for alternative instructional materials that can gender active involvement of students during learning programmes.

What are Instructional Materials?

Instructional materials are those key resources used by teachers regularly to help students acquire knowledge. They are the tools that anybody that is involved in the field of teaching, including science laboratory instructors, can use to assist learners in such a manner that can make them to easily understand better what is taught. Chike-Okoli and Berje (2002) identified instructional materials as those devices and strategies adopted in the school system to enhance teaching and learning. They mentioned such items as visual aids and/or equipment which improve quality and range of instruction. Monsuru (2015) referred to instructional materials as human and non-human materials and facilities that can be used to achieve effective instruction. Instructional materials have also been described as those resources that have "intellectual content" designed as vital tools to assist in teaching a subject or a course (*School Board of Miami, Bylaws and Policies*). Instructional materials also include educational resources used to improve students' knowledge, abilities and skills, to monitor their assimilation of information and to contribute to their overall development. Such materials could come in different forms: packaged illustrations, educational laboratories, manipulative resources, electronic kits, and other forms of Information and Communication Technology (ICT) wares.

Instructional materials could be classified under two broad categories:

Concrete objects: These are materials that are sourced from the world of nature, e.g. rocks, raw materials, semi-finished and finished manufactured articles and models, plants and animal specimens, wood, metal, plastic and glass objects. They can come in different types, shapes and sizes for different types of learning.

Technological Instructional Media: These are technology-powered materials and models enhanced by audio and video tutorials to provide attractive affordances making learning more enticing and exciting. Film projectors, tape recorders, television sets, slides, photographs and television sets are examples of concrete technological resources. Teaching machines like language laboratory machines, closed circuit television systems and computers can afford practical drills to help learners rehearse previous lessons. Software machines

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that can be connected to the internet are becoming popular in the field of education for more practical learning. Knowledge enhancing objects and resources used in the classroom produce learning that can be retained in the repertoire of learners for a longer period. Irrespective of the form or shape of these instructional materials, their common goal is to serve as instructional enhancement resources. From the foregoing, it can be deduced that any resource that a teacher uses to help him improve the quality of his instruction can be regarded as instructional material. Every teacher needs instructional materials to maintain a healthy and successful classroom.

Benefits of Instructional Materials in Education

Some teachers tend to ignore or do not add value to the use of instructional materials or are ignorant of the relevance of instructional materials in the classroom. The result of this is massive production of poor quality students who can hardly pass internal or external examinations, or even function effectively after the education programme. Every educational system aims at producing graduates who will be found worthy in character and learning after graduation. However, when learners are taught without appropriate educational supporting materials, the achievement of educational goals may be halted. They will not possess the special skills and abilities afforded by instructional materials because they were not exposed to the affordances of such resources According to the *US Board of Education Policy of County Schools, November 5, 2012*, instructional materials should form part of class lessons and should benefit the entire education process in the following ways:

1. Facilitate understanding of lesson content through practical applications;
2. Arouse and sustain interest in learners and stimulate factual knowledge, literacy appreciation, aesthetics and ethical values;
3. Provide visual aspects to concepts or processes and help to clarify abstractions;
4. Promote retention of acquired knowledge because it is believed that learners tend to retain and remember what they see or experience;
5. Allow the teacher to engage learners through the use of visuals and interactive activities;
6. Assist the teacher to support learners of varying levels of ability and foundational skills which they bring into learning;
7. Constitute materials used to evaluate learners' knowledge;
8. Allow for adaptation, supplementation and elaboration, especially when varieties of contents and concepts are involved;

9. Enrich and support the curriculum;
10. Allow the teacher access to varieties of learning activities and experiences to enrich instruction;
11. Enable the teacher to use the same resource or experience to reach out to all members of a group or class;
12. Hold the learner's attention and keep the focus on the learning activities;
13. Provide the learner a platform for development of innate abilities and skills;
14. Offer the learner opportunities for independent and individualized learning.

Qualities of Instructional Materials

Every worthwhile instructional material should directly or indirectly promote learning. Instructional materials that can positively impact on knowledge acquisition should possess the following qualities, according to Monsuru (2015):

1. Instructional materials should be able to support both the school and government stated educational goals, policies and literacy advancement strategies.
2. Instructional materials should be educationally significant and be such that support, enrich and extend the school curriculum.
3. Instructional materials should encourage informational, educational and recreational reading, viewing and/or listening and also widen the knowledge scope of the intended users.
4. Good Instructional materials should consider varied user interests, ability levels, backgrounds, cultures, religions, languages and age groups/developmental levels.
5. Quality instructional materials should provide information that will enable learners to understand their roles in society and to make intelligent judgments in their daily lives.
6. Instructional materials should provide information that represents the interest of diverse religious, cultural and ethnic groups in the society and the contributions of these groups to societal advancement. In this case, no culture, language, religion or ethnicity should be accorded more

prominence or promoted more than others in instructional representation in the curriculum.

7. Instructional materials should be suitable for the intended subject area, learning style and learner's special needs. Materials that ignore variety of representations will not be able to yield the expected educational dividend of enduring change in the behaviour of the learners as a result of their exposure to insufficient experiences.

Sources of Instructional Materials

There is an array of instructional materials, ranging from the traditional instructional resources to graphic organizers and teacher-made materials.

Traditional Instructional Materials: Instructional materials under this type are those materials that teachers have been using and are still using. These include black boards, textbooks and workbooks commonly used in the classroom during lessons. In reading comprehension lessons, comprehension texts and passages, or cut-outs from long essays will be used. In language arts lessons, literature textbooks, writing textbooks, vocabulary and spelling workbooks, flashcards, will form the traditional instructional materials. Additional traditional resources and supplemental reading texts like novels, pamphlets, and poems can be used in the language arts classroom. It is important to note here that textbooks control teaching and learning. Generally, materials, including textbooks are at the centre of what goes on in the classroom. Practically, teaching and learning rely so heavily on textbooks that learners learn materials the way they are presented in textbooks, (Kitao & Kitao, 1997). Even the methods and components of learning are guided by textbooks. Some textbooks go as far as prescribing the procedure of learning in addition to the methods and content range. Only experienced teachers will be able to escape from the clutches of textbook prescriptions.

Graphic Organizers: Visual materials could be employed to stimulate imaginative creativity of learners. Graphic organizers are supplementary pictorial illustrations that can help in conveying lesson comprehension exercise to a creative level. Such graphic materials as charts, maps, diagrams, pictures, tables, drawings, graphs, atlases, globes, laboratory apparatus and materials and other visual referents are meant to help learners attach meaning to concepts or to selected texts. They mostly appeal to the sense of sight. Visuals are iconic and normally resemble the things they represent. As such pictorial illustrations are presented in class, they transmit signals intended to stimulate learners'

perception and evoke their creative sense. At this point, learners begin to elicit meaning from the pictorials. Adebileje (2001) in a study found out that the pictorials were readily helpful in creating the kind of immediate imagination needed to explain concepts or ideas and, thereby, incorporate the new information with the old. In the language arts classroom, for instance, Venn and plot diagrams can be used as instructional tools to compare and *Analyse* possible relationships between a collection of different sets or events in literature. Such tools enable learners to see interconnectivity between ideas or sets rather than talking in abstraction. Thus, ideas are made visible to the learner with visual tools thereby leaving an imagery of the lessons in their minds. For instance, students can read a story or text and can then create their own visual representation of the information after they have been taught using graphic organisers. Dramatization of scenes in plays as well as physical presence of concrete objects can help to keep memory alive. Graphs are also useful in Mathematics class, for instance, in plotting the equation of a line because learners will be enabled to see how a line is graphed on a coordinate plane. Generally, the use of graphic organizers in the classroom is capable of triggering discussions and enhancing participation among learners resulting in active and effective learning. However, graphic organizers must support learning and not merely create distractions.

Teacher-made Instructional Materials: Teacher-made resource materials include any material that the teacher creates to enhance instruction in class. Lack or shortage of specific first-hand materials can cause a resourceful teacher to seek for alternative locally available material designed to enhance instruction. A resourceful teacher can create materials and resources to facilitate instruction, for instance, handouts, worksheets, tests, quizzes and projects. In this respect, a lot of improvisation comes in. Improvisation means presenting next-to-original situation that provides a frame of reference for instruction. Chike-Okoli & Berje (2002) caution that improvised materials must be tested for quality. They state that improvised materials should:

- a. be simple, readily replicable and durable.
- b. be relatively cheap to produce.
- c. effectively illustrate and provide answer to specific language problem and principle in focus.
- d. not differ significantly in quality and reliability from the original type or industrially produced type of it.

Apart from these, improvised materials should be able to arouse the curiosity and sensitivity of learners. Such curiosity and excitement aroused in learners promote learner-involvement and participation in class activities and invariably lead to meaningful learning.

Alternative Sources of Instructional Materials

With the advent of technology, there are lots of materials available now on the internet websites to help teachers and learners meet their learning needs. In addition, the electronic media (Radio and Television) provide a variety of materials in current and natural language settings in relevant subject areas. There are also technological instructional media resources that have extended the repertoire of instructional materials.

The Internet: Access to the internet through the computer has made learning a pleasurable exercise ever since the computer appeared in the classroom. The advent of the internet technology has made the computer a part of modern instructional tool and an inevitable instrument of instruction. There are varieties of internet sources that illustrate different types of learning activities. Many online learning sites can be accessed for illustration and drills in different subject areas. The audio and visual qualities of computer illustrations bring the learner as close to the illustration as in real life.

The volume of information on the internet is overwhelming. Through the use of computer, connected to the internet, learners can access the rich multimedia affordances which discharge to learners the various elements of their subjects of study in attractive and elegant colours, graphics, sounds and fascinating animations. For instance, it is now possible to practice language lessons through computers since computer laboratories can play roles that are similar to those of language laboratories. The internet avails learners unparalleled access to instructional resources, making possible learning experiences that are open with flexible navigation, focused rich context, learner-centred activities, exemplary social context of learning materials and learning experiences. Through the internet world wide web (www), learners can access rich materials about people, cultures, economy, politics and other activities of the people of different continents of the world. There is unlimited access to different types of rich learning materials that can be directed to meet individual learning objectives. Online libraries provide access to wide range of teaching and learning materials in various subject arrears to equip individuals with both practical and theoretical information. Teachers and students need to be able to identify and log in to the appropriate sites to access the desired learning material.

Technological Instructional Resources: Digital audio-visual materials have also made significant in-road into the classroom as instructional resources apart from the visual instructional materials. Audio visual equipment/hardware, like radio and television, video-recorded motion pictures with sound track, slides and film strips, educational DVDs, power point, sound tapes representing static or motion displays, you-tube and other online materials, all play vital roles in enriching learning experiences with awesome phenomena that are inaccessible to direct observation. They appeal to the senses of sight and hearing, thereby, enabling the learner to brainstorm and examine relationships of ideas and concepts (Adebowale, 2013).

Considerations in Selecting Instructional Materials

A clearly stated instructional objective in terms of specific behaviour provides directions to the teaching process that can lead to the achievement of the desired learning outcome. In providing rich instruction, instructional materials are incorporated into the activities designed to help the teacher achieve the desired learning outcome. In selecting instructional materials, a number of considerations need to be made. These considerations, according to *The School Board of Miami-Dade County Byelaws and Policies (2011)* include:

1. The instructional material should be able to meet the needs of the learner in relation to the desired learning outcomes.
2. It should also consider what deficiencies or disabilities the learner is bringing into the learning situation. Thus, it might be necessary to evaluate learner's readiness level at the beginning of the instruction to enable selection of relevant and adequate instructional materials. Such knowledge of students' abilities guides the teacher in formulating and modifying achievable plans to meet the needs of the learner.
3. The material should be attractive, durable, manageable, and possess apt literacy and physical quality, clarity, skilfulness, appropriateness in form and organisation.
4. The material should be available and affordable such that individuals and institutions should be able to access it financially.
5. The material should be suitable for individual, small group or large group in-depth enrichment.

6. The material should be reliable to the extent that its accuracy, authenticity, and authoritativeness should not be in doubt. It should also be up-to-date, and unbiased in all ramifications.

When the learning needs of students are determined, instructional methods can then be structured to integrate instructional materials designed to help learners achieve the desired learning outcomes. Only materials that support the desired outcome are necessary in the learning process. The teacher should, therefore, conduct an objective assessment of instructional objectives to determine where he is going so as to enable him select experiences that can take him there. The successful realisation of the objectives of any educational programme is attached to the quality of instruction and facilitating resources.

Challenges of Sourcing for Alternative Instructional Materials

The major challenge facing the search for rich alternative instructional materials is the large market. Rich instructional materials are resources that stimulate interesting ideas and activities that support learning. There are lots of instructional materials in the market competing for selection and use by teachers. New products flood the instructional material markets and are vigorously promoted through advertisement. Thus, teachers must select materials that will match the learning needs of learners as specified in the curriculum. There is need for critical examination of instructional materials from the view point of appropriateness of material for instruction and in keeping with the set educational standards.

Another challenge of providing alternative instructional materials is finance. Good quality materials will cost higher than lower quality ones. In recent times, there is dearth of instructional materials in very many public schools as a result of poor funding by government agencies. This has made it increasingly difficult to find meaningful instructional materials in public schools. The best that the teacher can do under this circumstance is to improvise with available local materials, which may not adequately reflect the robust assistance needed by learners.

However, Stephen (2015) observes that location can constitute a challenge to sourcing for alternative educational materials. If a particular learning environment is located in a difficult terrain, access to some form of instructional resources may be limited, especially the bulky ones. Similarly, it may be difficult to locate some types of instructional materials in remote places that lack infrastructures like electricity or internet connectivity. In addition to these,

some extreme weather conditions may constitute obstacles to the use of certain types of instructional materials. Instructional materials that may generate heat or that could be damaged by extreme heat may not be sourced in very hot environments. These are some of the environmental challenges confronting the sourcing of alternative instructional resources for effective teaching and learning.

It is obvious that no single instructional material may be able to effectively meet the needs of a particular learning situation. This, therefore, may sometimes, call for adapting existing materials by modifying content to suit the learner as a result of peculiar individual factors like age, gender, socio-religious background, and cultural considerations. This will require a lot of efforts and dedication to achieve and teachers will also need a lot of exposure to the processes and criteria for sourcing for rich materials for instruction.

Summary

This chapter began with an exposition of the concept of instructional materials. It gave a comprehensive explanation of the term and also enumerated the benefits of instructional materials in classroom interactions. It made a case that every effective instruction should be accompanied with appropriate instructional materials. Generally, instructional materials rule over teaching and learning because of heavy reliance of teachers and learners on them. This chapter also presented the varieties of instructional materials, ranging from traditional instructional materials which include graphic organisers and teacher-made improvised materials, to the internet and technological instructional media. However, it noted that in selecting instructional materials capable of enriching learning, care should be taken to ensure that such materials can be incorporated into activities designed to facilitate teaching and enhance learning. Such material must be able to arouse and sustain the interest of learners as well as promote retention of learnt content.

The major challenge associated with sourcing for alternative instructional materials is finance. Other challenges like quality and appropriateness of materials and also location of the learning environment are issues that need careful handling to resolve. Despite concerns about the financial involvement in providing rich instructional materials, it should be acknowledged that effective learning is difficult without such materials. With the co-operation of stakeholders in education, these challenges can be effectively overcome.

Self-Assessment Exercise

1. What do you understand by instructional materials?
2. Outline ten benefits of instructional materials in education.
3. Discuss seven qualities of instructional materials.
4. Mention and discuss four alternative instructional materials.
5. Outline two challenges of sourcing for alternative instructional materials.

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