

Instructional Materials Improvisation Strategies: A Panacea for Effective Teaching and Learning in Nigerian Schools and Colleges

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Abstract

The selection production and utilization of instructional materials is a major issue in pedagogical strategies in enhancing effective and efficient teaching and learning in schools. Perhaps what is news presently is the required creative intelligence and ingenuity in innovative options available to the learner and teacher with special consideration to environment and culture. "Improvisation of materials." This paper therefore focuses its search light on the need to harness the in exhaustive environment in material relevant in the design. Implementation adoptions and diffusion and cost benefit on the part of the learners and the educators rather than depending on ready -made instructional aids solely.

Keywords: Instructional Materials, Improvisation Strategies, Effective, Teaching and Learning, Colleges.

Introduction

Education involves basically teaching and learning. All programmes of education can only be successful with adequate, reasonable, availability and proper selection of educational equipment, facilities and supplies. Any investment in educational equipment, facilities and supplies however will only yield the desired results if there is proper utilization within the scope of education. To properly and maximally utilize educational Ikere Journal of Education equipment, facilities and supplies, all students must be made to participate fully to educational activities. This participation is guaranteed and enhanced through the medium of educational equipment, facilities and supplies.

The reality on ground in contemporary Nigeria is that there is serious economic crunch which in turn has resulted in budget cuts in our educational institutions. Consequently, it is really impossible to purchase all the equipment, facilities and supplies needed for education. This fact makes it imperative that teachers must think of how bes to improvise so that they can achieve their lesson objectives.

The major challenges of the third world countries like Nigeria is on how to achieve effective instructional delivery and learner's transferability of knowledge acquired into the world of work. Central to these problems is the application of appropriate instructional materials in teaching. Asabia (1990) noted that instructional materials ensure that the learners see, hear, feel recognize and appreciate as thy learn, utilizing the five senses modalities at the same time. This, no doubt, will result in meaningful learning. Bamgboye (1991) also posited that students learn better if they participate in the teaching activity.

The prevalent economic recession, escalating cost of materials, increase enrolment of students into schools coupled with over dependence of foreign technology have cripple the provision of adequate instructional materials in our today's classroom. As noted by Balogun (1982; "economics of education is generally economics of scarcity," that no matter how generous and rich educational authorities might be, there are generally not, in position to provide their schools with all they need. There is, therefore, the urgent need to think of

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alternative means of complementing the existing instructional materials in schools. This can be achieved through improvisation.

Improvisation can be defined as teachers' efforts to supplement, substitute, device means, materials and equipment for teaching and for pupils learning (Ango 1990). Improvisation can be explained as composing, or to make the best use of materials at hand. Bamgboye (1991) defined improvisation as doing something quickly in time of need or using whatever happens to be able in our locality of the purpose of teaching and learning.

Two forms of improvisation are discernible. These are role substitution and role simulation. Role substitution is in which original material is slightly modified in order to perform new functions. The use of the candle light as a burner is a good example. Role simulation involves the actual construction of apparatus. It should be noted that an improvised material should be teacher produced. The construction of instructional materials by local artisans is not improvisation but local production. An improvised material must perform the function of the original with nearly same degree of precision like the originals.

This paper is, therefore, an attempt to justify the need for improvisation and how improvisation can be achieved by teachers.

Equipment Consideration

There is a very wide range of equipment, facilities and suppliers need in the area of education.

However, it is important while attempting to improvise to postpone very expensive materials in favour of locally made ones in such qualities that is adequate for a diversified programme / disciplines in education. For instance, this in science and technology do not have to construct or purchase an expensive apparatus but locally made science and technical equipment and apparatus in such qualities to be adequate for a good number of children.

Need for Improvised Instructional Materials

Our environment is richly endowed with materials that can be explored in our schools to make teaching real and lively. The importance of relating to teaching needs not to be over emphasized as it makes teaching and learning easier, more effective, immediate and meaningful. Efforts should, therefore, be stepped up to provide improvised materials very abundantly in our schools more so that emphasis nowadays is placed on relating what is taught to the world view of the learners. It is therefore, important to improvise for the following reasons:

- 1) To provide students a cognitive bridge between abstraction and reality of knowledge.
- 2) To widen the scope of inquiry.
- 3) To develop in students the necessary process and practical skill.
- 4) To provide materials in sufficient quantities hereby enabling students work independently.

Indeed, nature is so rich and all environments are endowed with unlimited natural resources that are available for a resource teacher to tap. For a teacher to think of improvising, he/she must be clear as to what is to be taught in terms of content and objective. It is very essential that students under-going professional training in education must be taught how to improvise as part of their training. However, improvisation should be encouraged more at the primary school level. The reason among others being that most of the apparatus needed at the level are not readily available in adequate supply.

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The basis for success in teaching is resourcefulness. To be able to improvise require being resourceful and creative.

There are some steps that should be followed when improvising educational materials.

- i. Identify the item to be improvised
- ii. Study and understand the basic principles involved in its working
- iii. Design and draw a rough sketch of the item.
- iv. Make a list of the materials needed.
- v. Construct the item according to the given procedure to produce the prototype (prototype fabrication)
- vi. Test/evaluate through use
- vii. Re-designing if need be
- viii. Mass produced if possible and if necessary.

Challenges of Improvisation

Improvisation as a way of material design and production possess great challenge as the country (Nigeria) is making attempt at gradually sifting emphasis from importation of goods i.e. (reformation age) However, a lot of factors militating against improvisation in our schools. These include:

- i. Lack of basic tools: Basic tools needed to carry out the construction and design of materials are grossly lacking. Most of our schools lack functional technical workshops where there could be found. This has caused a lot of handicap for talented teachers who may want to improvise materials for specific instruction in the classroom.
- ii. Lack of Training: Most of our higher institutions of learning have no provision for improvisation of material in their curricula. As such students are deprived the opportunity to appreciate the needs for constructing materials from local sources. More importantly, training workshops on improvisation are seldomly organized for in-service training for teachers.
- iii. Technical factors: These relate to the technical know-how of teachers and the extent to which improvised materials can achieve accuracy and precision relative to the factory produced materials.
- iv. Lack of incentives: Teachers are not motivated enough to develop the positive attitude required in improvisation. The task of improvisation is demanding. It requires great dedication from teacher; government and school administrators (head) have a role to play through motivation of teachers.
- v. Teachers' Heavy Workload: Teachers are often over loaded with subject allocation on the time table. This give little time to carry out improvisation options.
- vi. Lack of Finance: Man school administrators fail to support teachers when these teachers demand for money to embark on improvisation. Perhaps this is a result of little fund at the disposal of the administration for the day-to-day running of the school.

Skills and Strategies of Improvisation

Improvisation requires from the teachers the following attributes resourcefulness, curiosity, creativity, perseverance, imaginativeness, inquisitiveness, innovativeness and adventurous. Furthermore, the teacher should develop the following skills: observation, measurement, calibration and manual dexterity.

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As a first step towards improvisation, the teacher according to Ango (1990) should:

- i. Be curious
- ii. Like to discover
- iii. Prefer difficult task
- iv. Enjoy solving problems
- v. Have drive
- vi. Be flexible in thinking
- vii. Have pronounced spirit of inquiry and
- viii. Develop a high sense of imagination

other skills required for effective improvisation includes mental skills (observation, measurement and creativity), manipulative techniques such as (drawing, planning, sign-writing, painting), as well as vital practical skills such as cutting, gluing, soldering and glass bending.

Although, not an easy task, a teacher can embark on improvisation of materials through imitation of the original. A cursory look at the original can initiate chain of imaginative thought, a pre-requisite to right scientific attitude. Thereafter, a series of continuous trial with very short time lapse between trials can lead the teacher though the problem at hand. Every stage of trial could pose serious threat to teachers effort. The teacher at this juncture should imbibe the spirit of inquisitress and curiosity. By this, the teacher should ruminate over the problem; do some consultations with colleagues until the task is accomplished.

Sources of Improvisable Materials

The environment is richly endowed with materials resources that could be utilized for improvisation. Teachers need to harness the opportunity provided by the abundance of resources to produce variety of materials that can bring about concrete and meaningful learning.

Most of the raw materials for improvisation can easily be obtained from the home, hardware shop, radio-repair shop, automobile repair shop, food market, timber market, drug store, electrical shop, toy market, the school laboratory, school, office bicycle repair shop and the locality (Ango, 1990, UNESCO source book, 1975).

Recommendations

1. Teachers skills can be enhanced by incorporating a course on improvisation into teachers training programmes for the benefit of the pre-service teachers
2. Collaboration with Federal Science equipment centres in the training and re-training of teachers is desirable.
3. In-service training and workshops on improvisation at regular interval should be organized for teachers on designed and maintenance of essential materials for teaching.
4. Instructional manual on improvisation of major materials to teachers should be produced to serve as guide to teacher.
5. Collaboration with introductory technology teachers will help to sharpen teachers manipulated skills and dexterity in the handling of tools required improvisation
- 6.. Field-trip to Federal Science Equipment center will give the needed exposure to teachers.

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7. In view of budget constraints, the use of locally made materials should be emphasized and encouraged where possible. However, any improvisation must be supervised by experienced teachers.
8. Improvisation does not have to be expensive to achieve educational goals.
In conclusion, we must look inwards and not fold our hands when we as teachers do not have enough funds to produce teaching aids.
It is always good to teach students with real equipment and standard facilities so that they see, feel and use the real materials right.
In all cases, care must be taken to see that students are safe for the use of the improvised materials so that they do not lead to accidents and injuries.

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