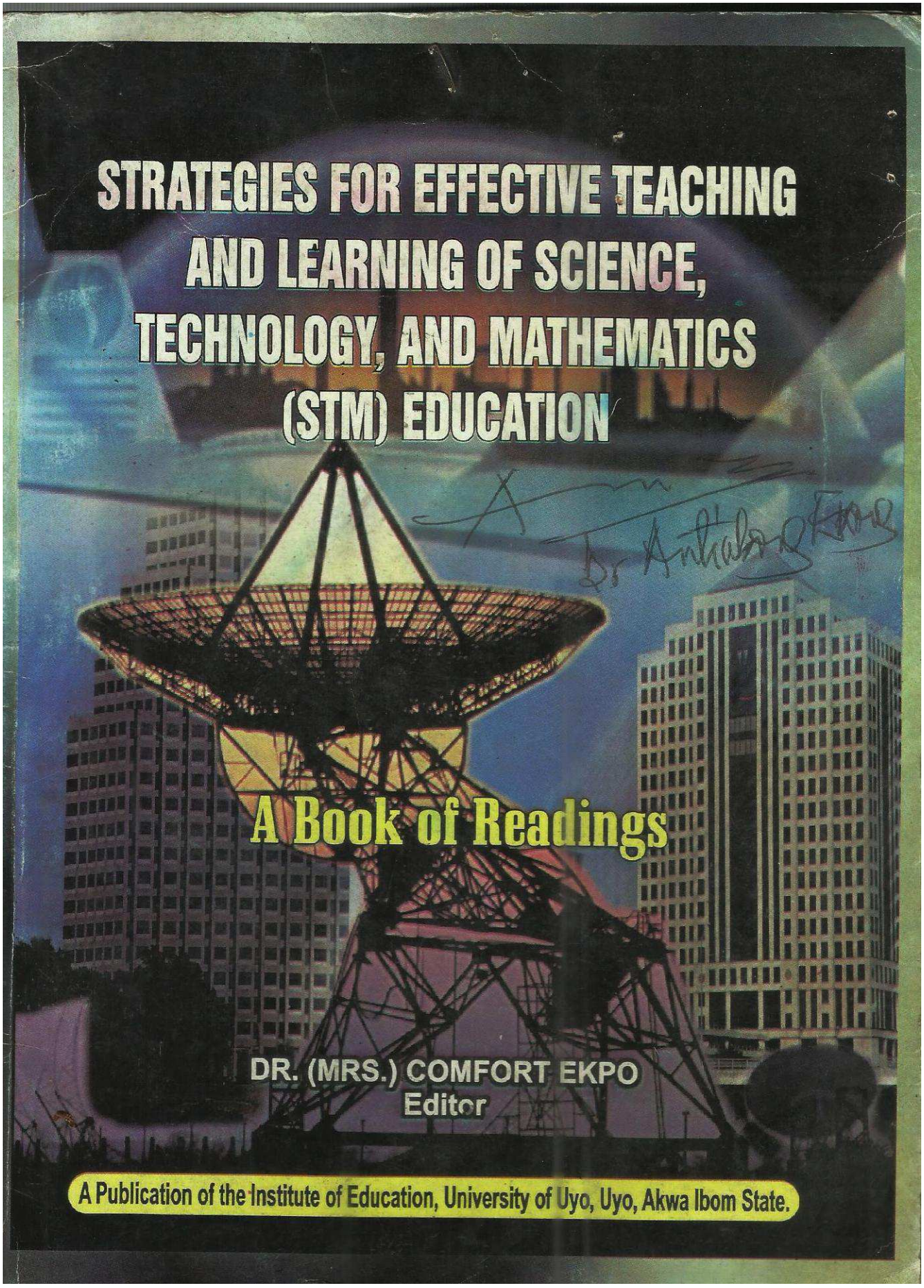
STRATEGIES FOR EFFECTIVE TEACHING AND LEARNING OF SCIENCE, TECHNOLOGY, AND MATHEMATICS (STM) EDUCATION
A Book of Readings
DR. (MRS.) COMFORT EKPO
Editor
A Publication of the Institute of Education, University of Uyo, Uyo, Akwa Ibom State.

IMPROVISATION OF MATERIALS FROM LOCAL RESOURCES FOR DEMONSTRATIVE INSTRUCTIONAL DELIVERIES IN AGRICULTURAL EDUCATION

ANTIABONG O. EKONG

INTRODUCTION

The need for improvisation of instructional materials from local resources for demonstrative instructions in agricultural education has been the concern of instructional media experts in the present day media-materials scarcity in Nigeria. Improvisation explains the activity or act of deriving relevant materials needed from resources within the environment through high level thinking, creativity and application of manipulative skills.

Instructional situations in agricultural education are often theoretical, abstract and superficial with little or no demonstrations to drive home the concepts, principle facts or skills transferred to learners. The situation cannot be divorced from lack of creative ability of agricultural educators to improvise materials from local resources. The ability of the individual agricultural educators to improvise materials is a precursor to instructional effectiveness. Effectiveness is to the extent of stimulating, causing and sustaining learners' interest through harmonious instructional interaction toward achievement of intended outcomes, Effective instructions according to Ekong (1994) is a prime factor in the success of agricultural education programmes, what materials to employ to drive home planned instructions to ensure learners' understanding and grasps. This is against the instructional mission of agricultural education being practical and productive-based for productive skill acquisition. There seem to be a negation of the need to look inwards within the local environments for local resources that could be utilized in organized instructional deliveries. It may not be out of place to state here that the products of such instructional situations would be loaded with theoretical and abstract concepts rather than practical skills for solving practical problems in agricultural education. If the above trend is allowed to continue without intervention in terms of according improvisation the prominent stands in instructional deliveries, then the mission of practical and productive-based instructions would be a mirage. This paper therefore discusses improvisation of materials from local resources for demonstrative instructional deliveries in agricultural education.

THE CONCEPT OF INSTRUCTIONAL MATERIALS IN AGRICULTURAL EDUCATION

The description and explanation of instructional materials vary depending on the background and understanding of the proponents as well as the application of such materials. Mkpa (1987) described instructional materials as tile curriculum resources that include ail the teaching materials which the teacher and the entire class utilize for the purpose of making teaching and learning more effective. In his view, Ibe-Bassey (1988) proffered instructional materials as comprising all the objects or means of communication process that stores and/or distribute human experience and knowledge.

Instructional materials is explained by Ekong (1994) as that which embraces all the devices that assist vocational teachers in transmitting facts, skills, attitudes and knowledge to the learners within the instructional system and as may be applied to the world of work. Okwo (2000) referred to instructional materials as the component of learning system, which carries and/or facilitate the presentation of the content of learning in teacher-led lessons. Instructional materials can therefore be noted as indispensable instructional component that improves the productivity of teachers in their instructional role performance. The facilitator roles of instructional materials in agricultural education, instructional situation cannot be ignored since it reinforces demonstrations to ensure effectiveness.

Ekong (2000) defines agricultural education as an in-school agricultural training for youths to acquire relevant agriculture occupational skills for effective and sustained engagement in any chosen agriculture occupational area. The practices are directed toward learner's acquisition of relevant agricultural skills for entry into, and for effective and efficient performance in chosen agriculture occupational areas. The role of instructional materials in agricultural education therefore can be defined as all the instructional and leaning devices systematically designed, produced, selected or improvised to facilitate the transfer, acquisition and evaluation of agricultural knowledge and skills to student.

The relevance of instructional materials in agricultural educational delivery is to the extent of their contributing toward achievement of the following:

i. Making instructions interesting and easy to comprehend
ii. Stimulating and sustaining learner's interest
iii. Facilitating internalization of concepts, theories, principles and skills by learners,
iv. Playing a key role in making possible practical and productive- based instructions,
v. Supporting improved performance of learners,
vi. Promoting organized lesson preparation and deliveries by the teacher,

vii. Encouraging learners active participation rather than being passive listeners
viii. Making learning experiences integrative and so on.

INSTRUCTIONAL MATERIAL FOR INSTRUCTIONAL DELIVERIES IN AGRICULTURAL EDUCATION

Instructional deliveries explain systematic activities of instructing, teaching, guiding, giving of advice, transferring, conducting or providing selected and organized agricultural knowledge and skills to the learners. Successful instructional deliveries in agricultural education is predicated on specific and relevant groups of instructional materials.

Various classes of material can be identified as being relevant and their classification is based on their applicational values, For the purpose of this presentation, three groups of instructional. Materials as articulated by Olaitian, Nwachukwu, Igbo, Onyemachi and Ekong (1999) would be applicable. The groups are tools and equipment; fixed facility and consumables. Also those identified and described by O'wo (2000) as three-dimensional media could also apply.

Tools and equipment incorporate the simple or complex instructions or mechanical devices for performance of special operations. They are applicable in instructional deliveries on the farm, workshops and technical operation and laboratories. Tools and equipment would be effective in demonstrative instructions for the transmission and learning of skills and the testing of skills.

Fixed facilities include workshops, green houses, nurseries, school farms, plantations, fish ponds, brooder houses, poultry pens, piggery, rabbit hutches, processing and storage plants and so on. Such facilities are positioned to perform specific sophisticated operations.

The three dimensional facilities are those which have lengths, breath and thickness (Okwo 2000), Examples include realia, objects, specimen, models, prototype, laboratories, field trip etc. The three-dimensional facilities could apply in the provision of hand-on experience, through demonstrations, environment and therefore prove to facilitate improvisation.

THE NEED FOR IMPROVISATION

Explanation of improvisation is subject to variations and usage Improvisation of instructional materials involves creating, developing or producing needed materials from local resources within the environment to serve specified purposes. According to Alonge (1983), improvisation is a process of minimizing cost on equipment and materials; an inexpensive method of widening enquiry. Alonge stressed that improvisation is a challenge to curiosity, creativity and productive application of intellect. Explaining further,

Hornby (1995), asserted that improvisation means to create; to make from whatever is available without prior planning.

Agricultural education is an environmental related discipline that draws its meaning, principles, practices and methods from the environment. Improvisation therefore would mean creating, developing, deriving, selecting and building relevant and needed materials from the resources of the environments for demonstrative instructions. It is therefore an integral component of a successful instructional setting. This statement supports the emphasis by Ekpo (1.988) that as much as possible teachers should see the local creation of instructional materials as learning experiences for themselves and for those students they incorporate in the planning and production of those media.

The need for improvisation had been discussed by Eshiet (1988) who noted the increasing cost of production and acquisition of instructional materials as accounting for the needs. The problem of accessibility to, and availability of manufactured instructional materials as observed by Ekong and Olaitan (1999) also accounts for the need for improvisation. The need to drive home instructions in agricultural education as an environmentally related subject calls for improvisation from local resources, and which cannot be compromised. The ultimate need for improvisation is effective deliveries of instructions in relation to the environment.

SOME IMPROVISED MATERIALS FROM LOCAL RESOURCES

Quite a number of materials could be improvised from local resources and these can be applied to make instructional deliveries in agricultural education effective. Some of them are listed below:

The livestock farm	Livestock management. (Feeding, health-care, diseases, habits etc.
Arable crop farm	Growing habits of crops, morphology, diseases, pests
Prototype tractor	Parts and functions of a tractor
Distinguished moulded	Soil profile and their characteristics soil layers
Specimens	Live illustration of concepts
Water pots, calabash, Fireplace with racks	Storage of grains
A glass, water, toilet tissue,	Germination of seeds
Soil samples, water, white bottles.	Soil sedimentation

Yellow maize, beans,	Feed formulation dry fish, bone etc.
Peeled yam, salts/sugar water	Osmosis
Machetes, spade, shovel hand trowel	Farm tools
Wooden tables and chair	Uses of forests
Plain paper, meat.	

The list of improvised materials can go on and on.

DEMONSTRATION IN INSTRUCTIONAL DELIVERIES IN AGRICULTURAL EDUCATION

Demonstration is a method of instructional delivery that involves exhibitions and explanation of specimens or experiments, It incorporate out-word exhibition, illustration or manipulation of principle and practices for logical proofs for authentication, verification, ascertaining or drawing of inference. In agricultural education, the employment of demonstration is to present and transfer knowledge and skills in a more interesting manner and to make it real. Demonstrations in relation to real life situation involves the teacher demonstrating while the students watch for their own practice based on their observations. The strengths of demonstrational instructions in agricultural education is to the extent of the instruction and learning processes being practical and leaners-centred. It ensures students active participation in purposeful activities set. Through demonstration, instructions are made cleared and more descriptive, lifelike and expressive. It would facilitate the development of cognitive ability in learners. Further more it results in generation of students interests, sustained appreciation and motivated applications of knowledge and skills learnt.

IMPLICATIONS OF IMPROVISION OF INSTRUCTIONAL MATERIALS FOR AGRICULTURAL EDUCATION

Improvisation of instructional materials from local resources has implications for demonstrative instructional deliveries in agricultural education. If improvisation is integrated into agricultural education instructional deliveries system, the high cost of manufactured materials and other supplies would be averted. Agricultural educators would be exposed to the useful and utilizable materials within the local environments that could contribute in facilitating instructions and learning. It would ensure learners direct contact with materials within their environment of experience. Agricultural educators would not be the exception in this case.

The training for skill acquisition in the construction of simple prototype, apparatus and equipment would be significance. Improvisation would go a long way to help generate learners' interest in the instructional-learning processes as

active participants and not passive partakers. In effect instructions and learning activities would be less boring, meaningful and down to earth.
Agricultural educators would develop the ability for high-level thinking, creativity as well as the habit and attitude of resourcefulness.

Instructional gap that may have been created due to short supply of instructional materials would be filled by improvisation. In schools youth organizations in agricultural education would be motivated to develop and embark on programmes of production of models, prototype for pre-acquisition of real-life skills. Above all improvisation would encourage the necessity of looking inwards for relevant and utilization resources for boosting instructional deliveries in agricultural education.

CONCLUSION

The achievement of practical and production-based instructions in agricultural education is yet a mirage. The justification for the claim is the non-integration of improvisation of materials as a component of effective instructional delivery system. The experience on the field has been that of theoretical and abstract oriented instructions and of course superficial learning. But the option of purposeful re-direction is the integration of improvisation of instructional materials in the instructional system for effectiveness.

REFERENCES

Alonge, E. I. (1983): Improvisation in Integrated Science. A practical demonstration 24th proceeding of STAN Lagos: Gilbert, Grace and Gabriel Associates, p. 171 – 177.

Ekong, A. O. (1994): The Selection and Utilization of Instructional Materials: Implications for Vocational Technical Education in Nigeria. In E. U. Anyakoha & E. C. Osuala (Eds). Vocational Technical Education and Technological Growth: Nusukka: Nigerian Vocational Ass. (Ed).

Eshiet, I. T. (1988): The use of Instructional Materials in the teaching of Science. In G. S. Ibe-Bassey (Ed). Fundamentals of Educational Technology. Uyo: Dorand Publishers.

Ekong, A. O. & Olaitian S. O. (1999): Accessibility of Instructional Materials for Effective Teaching of Practical Agricultural in Junior Secondary School. Journal of NAAPT Vol. 3, No. 1.

Ekong, A. O. (2001). Bridging gender Sap in Agricultural Education in Nigeria. In E. U. Anyakoha (Ed). Research, Imperative.and Challenges.for Home Economics in Nigeria. Pp. 204-212. Nsukka: C/o Dept. of Vocational Teacher Education, Rome Economics Research Association of Nigeria (RERAN).

Ekpo, C. M. (1988): Production of Instructional Materials: Principles of Design and Production Elements. In G. S. Ibe-Bassey (Ed). Fundamentals of Educational Technology. Uyo: Dorand Publishers.

Hornby. S. (1.995): Oxford Advanced Learners Dictionary 4th edition. Oxford: Oxford University Press.

Ibe-Bassey, G. S. (1988) (ed). Fundamentals of Educational Technology. Uyo: Dorand Publishers.

Mkpa, A. (1987): Curriculum Development and Implementation. Owerri: Totan Publishers Ltd.

Okwo, F. A. (2000): Selecting Instructional Materials for the Primary Education Components of the Universal Basic Education. The Nigerian Universal Basic Education Journal. Vol. 1, No.1: pp 188-190. Nsukka: Faculty of Education, University of Nigeria.

Olaitan, S. 0.; Nwachukwu, C.; Igbo, G. A.; Onyemachi, G. A. & Ekong, A. O. (1999): Curriculum Development. in Vocational Technical Education. Onitsha: Cape Publishers Ltd.