

VOCATIONAL/TECHNICAL EDUCATION AND TECHNOLOGICAL GROWTH

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CHAPTER NINETEEN

THE SELECTION AND UTILIZATION OF INSTRUCTIONAL MATERIALS: IMPLICATIONS FOR VOCATIONAL TECHNICAL EDUCATION IN NIGERIA.

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INTRODUCTION.

The need for selection and utilization of instructional materials in vocational technical education has never been more evident than in the present day media saturated Nigeria. Teachers are perpetually in the process of decision-making as regards the selection and utilization of instructional materials since the ability to choose and utilize determine to a large extent the effectiveness of the teaching-learning process.

The effectiveness of the teacher is a prime factor to the successful implementation of vocational technical programmes in schools. Effectiveness observe, Edunkin and Biddle (1979) "is to the extent that learning is initiated among the learners." The process is a function of variables one of which Rosenashine and Furst (1971) cited as the use of available, accessible and a variety of instructional materials in the instructional system, of ~~with~~ ^{which} selection and utilization constitute an integral part.

It is not an easy task for vocational technical education teachers (Erickson 1970) to cause the learners to use what they already know or already experienced in developing new insights and abilities. There is therefore the need for introducing more tools and equipment to transform the low level productivity of vocational technical education. As hinted by Kerber and Smith (1968) various audio-visual devices such as television, motion-pictures, slides, radio recording, etc., have been suggested as panaceas. Though these have been lately suggested as a means of improving productivity, vocational technical educators cannot continue to ignore the aspects of selection and utilization by complacently insisting that the objectives of vocational technical education programmes can be achieved from the general education approach.

The paper focuses on selection and utilization of instructional materials and the implications for vocational technical education.

INSTRUCTIONAL MATERIALS IN VOCATIONAL TECHNICAL INSTRUCTIONAL SYSTEM

Instructional materials, Olaitan (1984), include the materials and devices employed to supplement written or spoken words in the transmission of knowledge, attitudes and ideas and to emphasize clarity and vitalize the instruction. Similarly, Ibe-Bassey (1988), highlighted that they include all the objects

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or the means of communication process that stores and/or distributes human experience or knowledge. Precisely, it embodies all the teaching-learning resource, improvised or systematically designed, produced and evaluated to facilitate the acquisition and evaluation knowledge and skills. Instructional materials embodies, not only audio-visual materials but printed materials such as textbooks, pamphlets, documentary leaflets and reports, sheets of special directions for problems solving, as well as programmed learning sequence for utilization with or without mechanical device.

Instructional materials, in the context of vocational technical education, comprises all the available and accessible, theoretical, practical and skill oriented resources which facilitate the learning, acquisition and evaluation of vocational technical skills. They integrate all the devices that assist vocational technical teachers in transmitting the facts, skill, attitudes and knowledge to the learners within the instructional system and as may be applied to the world of work.

Instructional system describes an integrated, sequential arrangements and functioning of inter-dependent/inter-related components (contents, materials, teachers, students, methods) of instructional process aimed at the realization of specified learning objectives. An instructional system may be adjudged adequate if it satisfies a number of these conditions as highlighted by Oranu (1990);

- (1) Provision of active learners participation;
- (2) making learners aware of the results of their efforts;
- (3) provision of organizational framework for integration of learning experience that could be transferred from training to job.
- (4) making for practice and repetition when the need arises;
- (5) encouragement of the learners on performance improvement.
- (6) provision of reinforcement for the learners in appropriate behaviors;
- (7) allowing willing change by the learners.

SELECTION OF INSTRUCTIONAL MATERIALS IN VOCATIONAL TECHNICAL EDUCATION.

Vocational technical teachers increasingly find it difficult to sift and match instructional materials to the needs and capabilities of the learners. Available literatures on the selection of instructional materials, x-rayed by Ibe Bassey (1992), is a function subsumed under general model of teacher planning. Teachers, therefore, become indoctrinated into the

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"objective first" rationale developed by Tyle (1950); Mager (1960); Taba (1962). This requires, stating the objectives, selecting appropriate learning materials and activities as well as evaluating the effectiveness and efficiency of the outcome. It is of course ridiculous to delineate the outcome prior to the determination of appropriate means of achieving the ends,

The identification and selection of the most appropriate instructional materials are essential in the discharge of the formidable vocational technical task of transmitting psychoskills to the learners. An intelligent selection demands the development of professional attitude towards the process for better judgement. For effective selection, Gana (1981), outlines some basic criteria to follow:

- (1) the materials should reflect sound scholarship and should retain vital original ideas;
- (2) the materials should cover the topics intensively and extensively as appropriate to the class to promote well developed concepts and adequacy of information.
- (3) the materials should be related to objectives of the course content and the prescribed curriculum;
- (4) the organizational structure should conform with the development of the programme to satisfy the logical structuring and soundness of presentation.
- (5) the selection should consider individual difference and built up sequentially in line with principles of simple to complex, and known to unknown.

From his perspective, Erickson (1970) based selection on valid teaching purposes and uniqueness of the group of learners. The teaching purpose would contribute to identification of problems, projects, questions, discussions and other activities. This purposes may either be the teacher or student purpose with varying concentrations as shown in chart I.

CHART I: CLASSES OF INSTRUCTIONAL MATERIAL SELECTION PURPOSES

TEACHERS' PURPOSE	STUDENTS' PURPOSE
1. educational objective	1. students' goal
2. identifiable understandings	2. the problem
3. abilities	3. the assignment
4. attitudes	4. work accepted for completion
5. appreciations	

Courtesy Erickson (1970).

The uniqueness of the learners focuses on:

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1. the characteristics of the learners (maturity level, their experience, will defect impede learning and/or promote wastage).
2. Learners mental condition or perception, considering the economics, vocations and value systems, this dimension of selection assures the provision of rich potential for learner's active participation, action and growth.

For vocational technical education, the selection of instructional materials are better and functionally approached from the general and technical criteria.

CHART II: CRITERIA FOR INSTRUCTIONAL MATERIALS SELECTION IN VOCATIONAL TECHNICAL EDUCATION

GENERAL CRITERIA	TECHNICAL CRITERIA
The materials should be useable in the teaching units. The materials should satisfy the required experiences. The material should provide problem-solving activities.	The materials should have adequate artistic make-up.
The materials should be useful in the transmission of content to the learners.	The materials should have the features of attracting and retaining attention (appropriate physical/size? bright color, clear format?)
The materials should have input toward goal achievement by learners.	The contents should be free from conflicts and distractions.
The materials should satisfy the learners difficulty levels in learning (attitudes, abilities, understanding, appreciation).	The structure and content of the materials should portray careful planning.
The contents should have adequate examples for sound conclusions.	Experts or knowledgeable personnel should be involved in the selection.

The materials should stimulate thinking, reacting, discussing and studying.	The teachers should be resourceful enough to turn defects into advantages.
The materials should have the capability of functioning in regular class situation.	

Adapted from Erickson (1970)

UTILIZATION OF INSTRUCTIONAL MATERIALS IN VOCATIONAL TECHNICAL EDUCATION

The development of instructional materials, Bjorkquist (1972), asserted, permits the utilization of learning packages capable of developing knowledge and manipulative skills even without the involvement of teachers. The teachers need to focus on the utilization of instructional materials meaningfully through appropriate arrangement of the mechanics of presentation, depending on the intended skills. Unfortunately, Okpala (1981) observed that even when teachers realize that learning takes place in a variety of ways, they still cling to verbal symbolism (talk and chalk process) as the only practical medium of transmission of knowledge.

Vocational technical instructors have the responsibility of sensitizing and stimulating learning processes through the use of instructional materials effectively. In her view, Anyakoha (1992) indicated that it has become necessary that teachers organize the use of facilities in such a way that every learner is given equal opportunity to profit from the experiences being provided.

This notwithstanding, quite often the utilization of instructional materials has been based on physical appeal to the teachers without any consideration to the needs of the learners or the demand of the subject matter.

IMPLICATIONS FOR VOCATIONAL TECHNICAL EDUCATION

Vocational technical education revolves around job skills, employability and self dependency. Oranu (1990) confirms that it ensures "self dependency in agricultural occupations, trade and industries, business, home-making, vocational technical..." Individuals therefore develop and acquire transferable skills. Specialized transferable skills relevant to the society, Osuala (1981), stressed can most appropriately be acquired in schools.

The realization of the individual self-reliance, self-employment and technological growth of Nigeria therefore depends of the outcome of the instructional processes.

The implications of the selection and utilization of

instructional materials for vocational technical education could be focused on:

- (1) Designing and production of materials by student.
- (2) Repairs and maintenance of tools and equipment.
- (3) Revenue yields for vocational technical institutions.
- (4) Promotion of public image of institutions.

Designing and Production of Materials by Students

Effective selection and utilization of instructional materials enables students employ both the hands and brains in learning. This places them in a better position with adequate skills to produce materials by themselves through projects, home farm programmes or workshop experiences (the production of monoliths of soil profile, electronic relays, amplifiers, spanners, kimpot models in building, furniture, soap production, etc.)

These, apart from supplementing the teachers' efforts, increasing the stock of available teaching gadgets could help reduce dependency on the government.

Repairs and Maintenance of Tools and Equipment

Skill-oriented students produced as a result of adequate selection and utilization of instructional materials would be engaged in repairs and maintenance of broken-down tools and equipment which are common in Educational Resource Centers, Vocational technical workshops. This would promote facility management and reduce wastage.

Revenue Yields for Vocational Technical Institutions

Skill developed by students through effective utilization instructional materials in learning promote their desire to be creative, producing models, toys, samples that could be sold for revenue for the institutions concerned, thereby helping to reduce financial needs.

Promotion of Public Image of Institutions

Institutions renowned in instructional materials production are bound to serve as instructional material centers for purchases, excursions, borrowing, etc. This raises the tone of the institution adequately.

CONCLUSION

Selection and utilization of instructional materials have generated more excitement and controversy than any other pedagogical issue in recent times.

The activities need planning and execution to meet the needs of learners in terms of domains of education, interests, levels of maturity and experience, appropriate treatment of subject matter aimed at enabling learners solve their vocational technical problems.

Suggestion for Improvement of Selection and Utilization of Instructional Materials in Vocational Technical Education

The beginning teachers of vocational technical education need for in-service training and regular contact with instructional materials centers and experts for purposes of identifying and solving operational problems while at the bud stage.

The experienced teachers need to explore and identify new teaching and programme planning practices to help upgrade instructions and procedures of selecting and utilizing instructional materials. Notably, if teaching materials are properly selected and utilized, would motivate and sustain learners interests, clarifies information and new ideas, stimulate discoveries and challenging.

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