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A B S T R A C T

This paper looks at Curriculum Planning and Development from the perspective of Instructional Resources. It strongly suggests the full integration of Instructional Resources into the Curriculum Design activities from the planning stage. The types of Instructional Resources and their criteria for selection or production have been highlighted. The Planning-Programming-Budgeting System (PPBS) has been suggested as one important planning and management strategy that can facilitate the proposed integration. The need for establishing an Educational Technology section in the State Ministry of Education has also been stressed. Some suggestions have been offered on the problems related to political and financial support, personnel, resources availability and utilization.

Serious socio-economic and political problems, opportunities and increasing educational requirements, Nigerians still accept education as a vital venture and a prerequisite for social mobility. Recently, the standards of formal education scarcely meet educational expectations. This inadequacy to effectively cater for the national goals and individual needs demanded a complete restructuring of the educational system. The resulting 6-3-3-4 educational system therefore demands, among other things, functionalism and relevance in content, materials and methodology. Above all, it demands accountability on the part of all educational personnel. These demands cannot be effectively met unless effective instructional strategies are developed and employed. Those strategies involve the findings in the field of Educational Communications and Technology.

In the context of the problems sketched above, Nigeria's concern about the success of the Senior Secondary School (S.S.S) can be easily justified. The government's commitment to the 6-3 secondary education system is clearly spelt out in the National Policy on Education, 1981, Section 4(18). The related strategies can be found in sub-sections 19(6) and 21. In relation to teachers' role sub-section 24(6) states:

Teachers will be required to participate more in the production and assessment of educational materials and teaching aids, the planning and development of school buildings and furniture, and the evaluation of technical innovations and new techniques.

In teacher preparation, emphasis is also placed on instructional resources. For example, paragraph 81 in section 10 emphasizes teachers' role in "planning and development of curriculum". Also in section 10(87), the objectives of Educational Services which subsume Instructional Resources among other services, are:

- (b) What factors, management strategies and structural framework will facilitate the integration of instructional resources into the S.S.S programme?
- (c) What problems are likely to be overcome before an effective integration is realized?

INSTRUCTIONAL RESOURCES:

The "teaching aid or apparatus concept", according to Kanhi (1982) "has failed to create appropriate awareness of the role of instructional resources" in formal education in Nigeria. This can be attributed to the fact that at the planning stage, instructional resources are not integrated into the curriculum so its developers and implementers find it difficult to bring these resources into the instructional enterprise. Lack of integration partly accounts for the current practice of teaching most lessons with only the chalkboard (which in most cases are grossly abused) and the textbook (which, where available, obsolescence or irrelevance cannot be completely ruled out). The practice can hardly produce effective and successful implementation of the S.S.S curriculum. This is more so now that the need for Educational Technologists, Infrastructure, money, political support and proper attitude towards innovation have conspired to compound the already complex problem of integration.

Instructional resources refer to all resources (data, people, message, materials, devices, techniques and settings) which may be used by learners in isolation or in combination, both formally and informally to promote and facilitate the acquisition and evaluation of knowledge, skills and morals through the life-long processes of teaching and learning (AECT, 1977). People often refer to them as audio-visual aids, teaching aids, educational media, courseware, etc. Their classification too is varied: print and non-print, projected and non-projected, hardware and software, big media and little

media, etc. - all reflecting the media attributes, electronic nature and the evolutionary growth of educational technology.

The Print resources constitute one of the most widely accessible and most utilized class of instructional media. They include textbooks, workbooks, reference materials, magazines, journals, manuals, newspapers, programmed instruction, teachers' handouts, etc. According to Alcorn et. al. (1970), learners recall only 10% of what they read. This observation emphasizes the need to introduce other forms of media into the instructional programme.

The non-print can be classified into the audio resources which include the radio, audiotapes, records and their players, telephone and public address system. According to Alcorn, et. al. (1970) only 20% of what is learnt by hearing can be recalled. The next class of non-print is the visual resources. This class takes care of boards, models, graphs, diagrams, maps, charts, picture; and opaque, slide, filmstrips, overhead and still film projection. 30% of what is seen can be recalled. The third class of non-print is the audiovisuals which include the filmsound, television, videotape, audio-slide presentation, etc. Learners can recall 50% of what they hear and see. Other resources which do not fall neatly into any of the above are classified (Inyang-Abia, 1984) as phenomenal resources and manipulative-criterion resources. The phenomenal resources include community establishments, resource persons, dramatization and demonstration, trips, and unusual phenomena. The manipulative-criterion resources are those that learners directly interact with and manipulate in order to acquire the competence and mastery; they include resources such as guitar, accordion, flute, paintings, balls, rackets, sewing machines, cookers, craft equipment, laboratory equipment.

Alcorn, et. al (1970) observe that learners recall 90% of what they hear, see and do. Given the wide variety of instructional resources and their complex characteristics, the S.S.S. also needs as many varieties as possible.

CRITERIA FOR SELECTING OR PRODUCING

Most instructional resources, if not all, can be effective in the S.S.S. programme. Effective communication, teaching and learning (and even proper evaluation of some instructional tasks) can only be facilitated and guaranteed by careful selection and **skilful** utilization of appropriate instructional resources by the teacher and for the learner. However, because most instructional resources can be functional, neutral or dysfunctional in different instructional situations.

Heidt (1978) points out that a variety of media can be effective in attaining many objectives. Also most objectives can also be achieved through any or a variety of media. A knowledge of criteria for selecting instructional resources for the various aspects of the S.S.S Programme would therefore be pertinent and helpful. This is because rationality in resources, according to Carpenter (1971), depends upon "factors and combinations of variables that most closely approximate the desired or optimum relationship". Using this "best fit" approach, Gagne and Briggs (1979) have found the following criteria useful in selecting instructional resources for any educational programme.

1. Task Variables: These embody the degree to which an instructional medium better incorporates the desired learning variables: the behavioural objectives, instructional content, learner activities, and evaluation techniques and instruments. When these are clearly stated, they help the teacher to select or produce appropriate instructional resources.

The resources mobilized through a survey leading to an inventory. Accompanied with relevant information such as appropriate maps, photographs, contact addresses, telephone numbers, and other related data including instructional possibilities, rules and regulations covering visits, cost per visitor, existence of boarding and lodging facilities, these inventories, if adequately publicized could prove helpful to educators in instructional enterprise. These resources could be utilized in various ways and for a wide variety of learning experiences far beyond what any given textbook could provide to the average learner. For example, inviting a resource person to talk on traditional religion, visiting a historic scene, or learning about poultry farming in situ may provide a more comprehensive and more lasting experience than what a teacher with a whole textbook could provide. These resources are readily available to us, sometimes with no extra cost. All that we need to do is to mobilize and utilize them. Their selection for utilization is also subject to the criteria already specified above.

Values of Instructional Resources: The value of instructional resources cannot be overemphasized. They can be used to introduce and develop a lesson, organize and present facts and concepts, remediate instructional situation, review an instructional programme, evaluate a lesson or unit of instruction, and stimulate discussion or inquiry.

They help the teacher to talk less while the learners learn more, retain longer, participate more actively and exhibit the desired behaviour more accurately. They can be used to extend the instructional time. They are invaluable in individualized learning, effective in small group instruction and vital for large group instruction.

They make attention more relevant and functional because of the transfer value inherent in them. They facilitate the development of attitudes and reactions. Inaccessible material processes or events which are helpful in understanding some concepts and principles are made accessible to the learner anywhere. The teacher can use them to arrest and sustain attention and interest of the class, to help him present facts and information, teach concepts and principles, guide thinking and promote transfer of learning. They are the surest way to develop abstract learning - a corollary of concrete learning. If they are so useful, then what is the rationale for planning the curriculum without giving instructional resources its rightful place?

MANAGEMENT STRATEGIES AND STRUCTURAL FRAMEWORK FOR THE INTEGRATION

Management involves planning, administration, supervision and evaluation of men, materials and money in an effort to achieve the desired goals and objectives of a system or an organization. This section will address itself to the fiscal and curriculum planning as they relate to instructional resources.

Planning, Programming and Budgeting System (PPBS) has been found (Merrill and Drob, 1977) to be very effective in long-term planning for school media services. This is because of the emphasis of this system on choice and implementation of relevant specific programmes. It also emphasizes organization and utilization of human and non-human resources in order to realize identified desirable objectives within the limits of available resources and other relevant contextual variables.

Planning: At the planning level the needs are assessed, operational objectives are determined and are integrated

related to the curriculum and other academic programmes.

That is to say that the PPBS implementation allows for the determination of needs and operational objectives. Decisions based on Who shall produce what instructional resources for whom, for what purpose and through what means? are made. These decisions need to be made at the curriculum planning phase.

Programming: At this level, actual performance programmes are designed based on inputs from the learner, teacher and the society. The activities and the programme elements of the school are specified, and described in behavioural terms.

The units and sub-units, general statements and detailed instructional programmes with deadlines are specified and popularized. The functions of the various production units and sub-units (graphics, photographic, television, school radio, audio recording, improvisation administration, maintenance, etc.) are specified.

Budgeting: At the resource allocation phase, the necessary resources: money, facilities and personnel are allocated to accomplish the already specified goals and objectives of the various programmes. Financial data are provided to support the statement of plans and programmes. Educational and research goals in financial terms are specified. Multi-year plans in financial term are made. Import licence and foreign exchange are acquired for necessary bulk-purchase of spare parts of equipment and materials.

Evaluation: Evaluation is an in-built process of the PPBS. Each phase of the system is continuously and formatively evaluated. The summative evaluation comes after the programme deadlines. The programme is analysed and reported. Goals are revised, new objectives, programmes, procedures and training strategies are also identified based on needs.

The entire educational system is analysed and necessary revisions carried out.

Some structural frameworks to facilitate the implementation and integrating instructional resources into the S.S.S Programme are suggested below.

1. Educational Technology Unit in the State Ministry of Education

The existing organizational set-up where all educational services are merged under a single unit, "Educational Services", has failed to put instructional resources in the right perspective in curriculum planning and development, despite the vital role that media play in curriculum development and implementation. It should be reviewed and expanded. An Educational Technology Unit should be set up as a matter of urgency. It has been found to be effective in Imo, Rivers, Ondo, Oyo, among other states, where the effort of the Reference Committee on Educational Technology (RCET) has yielded fruits.

In 1978 and 1979 this committee (RCET) submitted recommendations through the Joint Consultative Committee (JCC) in Education to the National Council on Education (NCE). As a result, Ministries of Education throughout the Federation got approval in 1980 to create a Division of Educational Technology and Curriculum Development. However it is surprising that in Cross River State, the Educational Services Division is hidden somewhere at Uyo. An Educational Technology Unit will, to a great extent, ensure the achievement of the S.S.S Programme goals, given the commitment of the personnel involved. The organizational chart for this unit is illustrated in Figure 1.

The Graphics, Photographic and Community Resources sub-units could initially be merged together as the Visual Section.

School Broadcasting Section should take care of the radio, television and Audio Sub-Units. There should also be a Text-books and a Curriculum Planning and Development Section. The support Sections are the Administrative and the Mechanical. At the various sections and sub-units, improvisation should be of major consideration. Each section should be manned by committed personnel with relevant expertise and experience related to Educational Communications and Technology. Among the functions of this unit, the following should gain prominence.

1. To emphasize by various means, the utilization of instructional resources at all levels of our educational system.
2. To mobilize and produce an inventory of (and information related to) the community resources and their instructional utilization possibilities for the state.
3. To acquire (produce, purchase, loan, etc.), evaluate and distribute instructional resources for the state.
4. To mount training programmes (pre-service/in-service, etc.) for teachers in areas related to the production, selection, and utilization of instructional resources for the state.

It is pertinent to emphasize at this juncture the need for each institution of learning (primary schools, TTCs, secondary schools, etc.) in this state to set up a school media centre where all instructional resources are kept for use by learners or teachers either "in situ" or off situation. The existing libraries in each school or college can be a good nucleus of the school media centre. The library assistants can function effectively here at no extra cost, if given the basic media administration training. Only by setting up an Educational Technology Section in the Ministry of Education can this function be effectively catered for.

At this juncture too, we can recall that the instructional materials distributed by the National Educational Technology Centre (NETC), Kaduna, to most schools in this state have been going waste because at the curriculum planning level no provision is made for enrichment programmes as offered by the NETC, through the instructional radio.

Learning Resources Centre (L.R.C.): These are centres established not only for the production, utilization and distribution of instructional resources but also for the training and retraining of teachers and learners. They can be at the national, state or local government levels. Their staffing strength varies with functions, financial capability and the assigned objectives.

At each level they provide leadership roles in media development and media relevance to local instructional problems. Educational personnel and learners consult with the media specialists in the centres for assistance in curricular implementation problems. They are also involved in the activities of selecting, organizing, processing, cataloguing, storing and disseminating resources. The state and national Learning Resource Centres bear the responsibilities of the ministries. They can be very helpful in achieving the S.S.S Programme goals.

More relevant and closer to the people and the social programmes is the local government Learning Resource Centre. It occupies a crucial position. It modifies, approves and distributes the materials developed at the state and national levels for use at the local level thus helping to solve instructional problems. The localization of these materials helps to reflect the environmental and cultural needs of the immediate surroundings. The Learning Resource Centres at local level can provide production, selection, distribution, and leadership services to the S.S.S personnel in the area. The establishment is therefore strongly urged at each local government area.

CURRICULUM AND INSTRUCTIONAL RESOURCES: NEED FOR
TEAM APPROACH

Curriculum planning and development are educational functions and decisions that cannot omit the design and production of instructional resources because they are inter-related. Yet it is not unusual to find that the decision to produce or select the resources is done only at the curriculum implementation level by the teacher. This deviation can partly be held accountable for some inadequacies at the curriculum implementation level.

Planning and development of curriculum and instructional resources function as a team. The representatives of educational institutions, government ministries, industries, along with specialists in instruction, psychology, methodology, evaluation, educational technology, guidance and counselling and various subject specialists etc. team up to make instructional resource policy decisions.

At the initial level the needs of the learners, the teacher and the society are assessed. The goals, resources and their alternatives, the constraints, the curriculum scope, sequence and delivery systems are considered. The course level delineation

3. Availability and Utilization of Resources: Some of the course-wares are, however, costly to acquire but if adequate planning is made, the procurement will not pose serious problem. Local resources should be actively mobilized for utilization. Where appropriate media are selected, electricity ^{may} not always be required. Training and re-training of teachers can be very effective in improving the utilization of instructional resources.

Given the political and fiscal support and the fact that the instructional resources are systematically planned for along with the instructional content of the curriculum, and, given the fact that teachers have been trained in effective media utilization, the probability is that the integration of instructional resources into the S.S.S Programme will be a huge success to the benefit of the learners, the teacher and the society.

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- (a) to develop, assess and improve educational programmes;
- (b) to enhance teaching and improve the competence of teachers;
- (c) to make learning more meaningful for children;
- (d) to reduce educational cost;
- (e) to promote in-service education;
- (f) to develop and promote an effective use of innovative materials in schools.

In this section, of the four strategies outlined, ten are related to instructional resources.

EDUCATIONAL TECHNOLOGY IN SENIOR SECONDARY SCHOOL:
STATEMENT OF PROBLEM

Among some innovative approaches applied towards salvaging our ailing educational system, the findings in the field of Educational Communications and Technology (ECT) seem to raise the expectations of educational personnel and the learners. Although these findings are not a panacea for all educational problems, the expectations are not unjustified. Schriener (1977), Lange (1974) and Hodge (1970) among others, have recorded solid successes in many parts of the world where Educational Communications and Technology have been integrated into formal education. This can also be true in Nigeria.

Given Nigeria's concern and the subsequent commitment to the success of the S.S.S Programme, as sketched above, this paper therefore attempts to critically examine the problems, prospects and strategies of integrating some findings of ECT into the S.S.S programme in an attempt to solve some of the identified problems. Its focus is therefore on the following three questions:

- (a) Given the current socio-economic situation vis-a-vis the existing educational and pedagogic problems in the country, what instructional resources would be most suitable for the senior secondary school and why?

2. Learner Variables: These consist of learner's level of literacy, entry behaviour, attitude, experience, socio-cultural background, age, etc.
3. The Learning Environment: This subsumes the available educational infrastructure, finances, learning space, personnel attitude towards innovation, etc.
4. The Development Environment: This suggests that the selected instructional resources must meet the available time, budget and personnel which in turn do influence instructional design, implementation and evaluation.
5. The Economy and Cultural Setting: Variables in this category consider the available resources, technological skills, availability of electricity, socio-cultural level of users, religious and cultural idiosyncracies, degree of urbanization and acceptability of the instructional resources.
6. Practical Variables: These consider the size of groups (target audience) level of desired response, seating arrangement, cost-effectiveness, accessibility of media and spare parts, and teacher capability, etc.

It is important to point out the need, in austere times like this, to plan for the exploration, mobilization and utilization of all forms of community resources for instruction. They include community establishments: museums, cottage industries, poultry farms, zoological gardens, supermarkets, carpentry and other technical workshops, etc. Others are the unusual phenomena such as mineral depositions, forest reserves, springs and waterfalls, historic and cultural scenes and special sceneries, etc. The next group is the resource persons including the chiefs, national award holders, foreigners, celebrities, clergymen, businessmen and women, teachers, doctors, blue-collar jobbers, etc. These resources have great instructional potentials.

the units of instruction, distinguishes and specifies objectives. Contents and tasks are analysed, classified, sequenced and relevant media of instruction specified.

At the third level, that is, lesson level, the performance objectives are specified in behavioural terms, modules and modes (media and methods) are developed, implemented and evaluated according to the desired objectives.

The general set-up also considers teacher recruitment, pre-training and in-service training programmes, building and other infrastructural needs to match the learner and immediate societal needs and to reflect the national goals. This approach is based on the systems theory. No big venture had ever been successful without adequate systematic planning for all the basic variables at its inception. It is a holistic attempt to ensure proper planning and management of the educational enterprise to ensure the success of the S.S.S Programme.

PROBLEMS AND REMEDIES:

The following problems and remedies are likely to be contended with:

1. Political and Financial Support: The integration demands the support of the military administration which will subsequently give the necessary financial support for purchase, maintenance and repairs of equipment and the training of personnel. Other sources of finance such as Old Students Associations and PTAs need to be explored too.
2. Personnel: There is need to step up the training of Educational Technologists to win and encourage production and utilization of instructional resources in our schools. The pre-service training needs of the teacher must, at all levels, emphasize media production and utilization. Regular courses in the form of workshops, seminars, week-end courses, etc. should be encouraged for the serving teachers. These are likely to improve teachers attitude to instructional resources and their provision and utilization techniques.