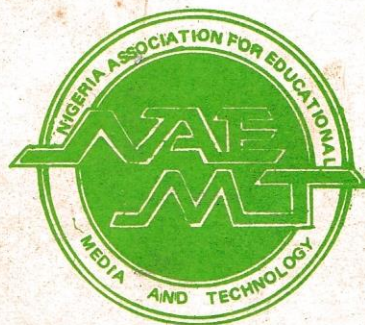


# EDUCATIONAL TECHNOLOGY AND 6—3—3—4 EDUCATION SYSTEM



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## CHAPTER EIGHT

### TOWARDS A MODEL FOR EVALUATING AVAILABILITY AND UTILIZATION OF COURSEWARES

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#### INTRODUCTION:

The need for adequate provision and fully utilized instructional materials challenges all educational personnel - from classroom teachers through guidance counsellors to the educational administrators. They constitute the pivot of instructional and curriculum planning, development and implementation. But such challenge can hardly be properly conceived and responded to without adequate empirical evidence. Such scientific evidence must stipulate the degree of availability, level of utilization and their impact on instructional achievement based on clearly specified criteria. They must evaluate "the actual effects against... a profile of demonstrated needs" according to Scriven<sup>1</sup>. This therefore underscores the need to develop and utilize acceptable workable evaluation model which is useful for searches and researches within the field of Educational Technology.

A model in this paper is seen as an edited version of reality. Its use permits adequate study and application of known concepts and the development of unknown ones. The analysis, synthesis and evaluation of reality can be facilitated without corresponding dangers, economic or otherwise, to the phenomenon investigated nor to the investigator. For purposes of research and evaluation within the educational sector and particularly Educational Technology, models have been found very precious.

They specify a variety of components thus helping to diversify the theoretical basis upon which reality can be identified, studied, or evaluated. Models provides the investigator adequate opportunities for analysis. This helps in the identification and study of patterns and relationships between and among the components of actual reality. Moreover, models can be effectively manipulated more easily and more safely than its reality. They can provide basis for generating testable hypothesis about reality.

Owing to the invaluableity of models and subsequent upon the challenges posed by media searches and researches, this paper attempts to:

- a) propose a workable model for evaluating the level of availability and locus of utilization of instructional materials; and



- b) analyse the components of the proposed model in relation to the average Nigerian instructional situation.

### GENERAL THEORETICAL CONTEXT

After reviewing five evaluation models (Stake's<sup>2</sup>, Scriven's<sup>3</sup> Stufflebeam's<sup>4</sup>; Provus<sup>5</sup>; and Webster's<sup>6</sup> it was evident that most evaluation models reflect identical concepts which are summarized by either Stufflebeam or Webster. It was also evident that no single model reviewed sufficiently provided the required anchorage for this paper. Certain propositions which were consonant with this paper were accepted, others rejected. The resultant synergetic approach results in an eclectic model. This approach to model development is consistent with applied researches which this paper emphasizes; it is in line with Anderson's<sup>7</sup> "Evaluative Concepts" which emphasizes multivariate nature of educational programme evaluation in which instructional materials and media are important components.

Stufflebeam's Context, Input, Process and Product Evaluation (CIPP) model seems most related here. For example, the context evaluation of both models is concerned with specifying the relevant background conditions, generating unmet needs, deriving the general and specific objectives and establishing the evaluation criteria. The implication is therefore that an assessment of the background of a phenomenon provides the starting point for evaluating it on the basis of the established criteria.

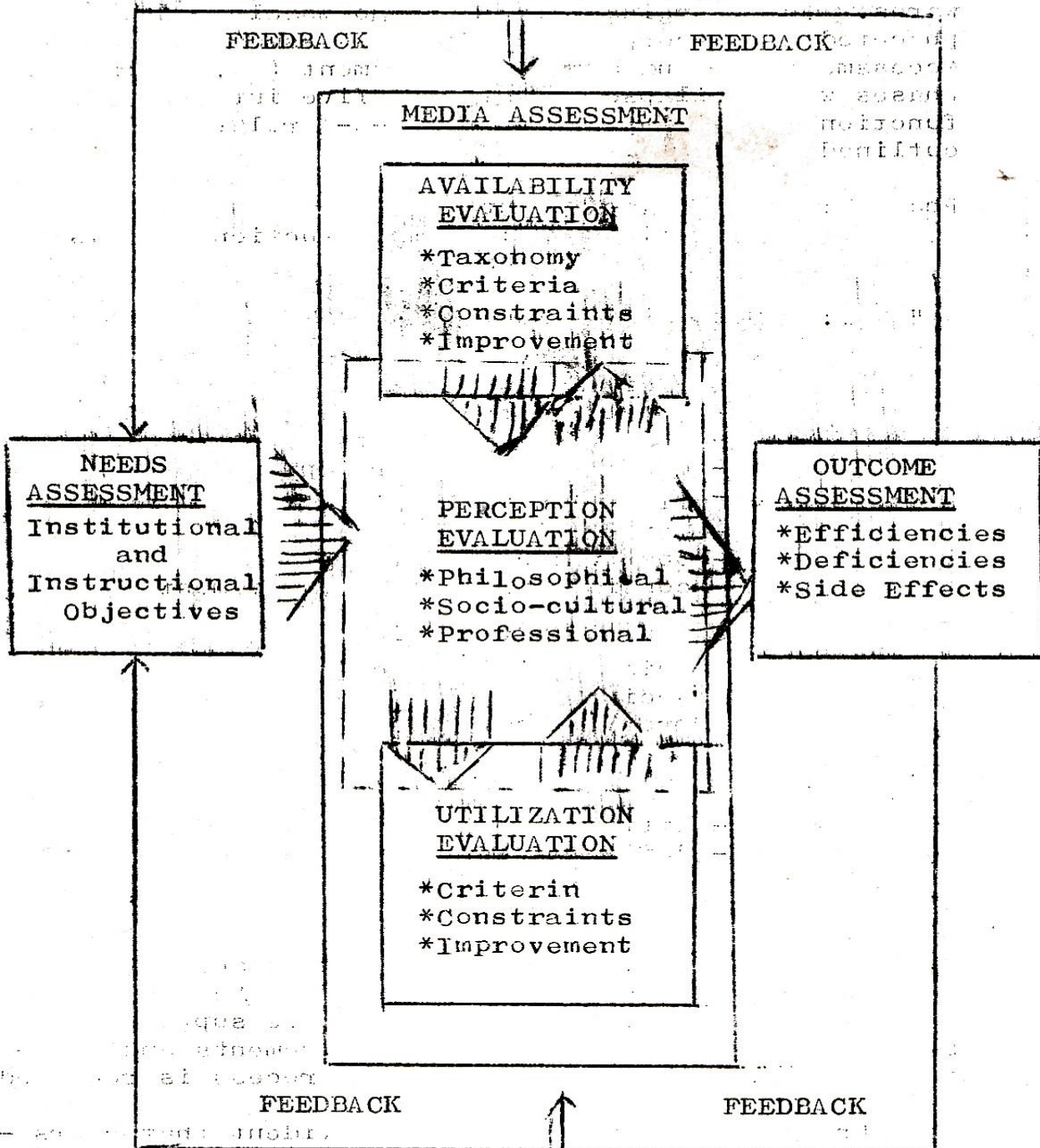
Webster's evaluation model reflects Stufflebeam's CIPP crossmatched with some socio-psychological backing. To determine programme's fate is purely a summative function and is not related to this study which is formative based. This study is interested in side-effects too because according to Ball<sup>8</sup>:

to ignore side-effects in an evaluation (model) is to carry out an incomplete evaluation.

From the above exposition it is evident that this presentation has the gestaltist touch and its resulting systems thinking.



Figure 1: A Model for Evaluating Availability and Utilization of Coursewares



## THE EMERGING NAMO MODEL

Based on Scriven, Stufflebeam and Webster an eclectic model is developed for evaluating the level of availability and locus of utilization of coursewares. The emerging eclectic NAMO model is tri-phaceted; it incorporates Needs Assessment (NA) Media Accessment (M) and Outcome Assessment (O). The three phases when collapsed results in five inter-related functional activity areas of a 1-3-1 relationship as outlined below:

Phase I: Needs Assessment

- Institutional and instructional goals and objectives.

" II: Media Assessment

- \* Availability Evaluation
  - media taxonomy
  - availability criteria
  - observed constraints
  - considerations for improvement

- \* Utilization Evaluation
  - Utilization criteria
  - observed constraints
  - considerations for improvement

- \* Perception Evaluation
  - philosophical perceptions
  - socio-cultural perceptions
  - professional perceptions

" III: Outcome Assessment

- efficiencies
- deficiencies
- side effects

Feedback loop is an obvious result arising from an evaluative process. In this model feedback is not fully discussed firstly because it is a "given" and secondly because evaluation results are supposed to be fed back into the system for improvements and decision-making. Through it the whole process is recycled.

From the diagram above it is evident that coursewares perception Evaluation process is interwoven with Availability Evaluation and Utilisation Evaluation processes because how the coursewares are perceived contributes significantly to their degree of availability as well as a threat to their job security then they would scarcely think of its use. But if they see it as co-operating agents which facilitate and improve their level of competence and they they (teachers) are an indispensable factor in any instructional situation, then they will explore various avenues to procure and utilize them. That means positive and informed attitude of the instructional personnel and administrators, coupled with adequate political support can contribute not only to their provision (availability) but more so to their effective utilization. The case of Lt. Rex Lee of Columbia in relation to instructional television as reported by Ogunmilade<sup>8</sup> supports this stand.



## PHASE I:

Needs Assessment: It is the starting point of this model. This process analyses the institutional and instructional needs surrounding the provision and utilization of the materials and equipment. These needs are strictly interwoven. The institutional needs are determined by the philosophy of the institution and are expressed as general and specific objectives to embody the societal and personal aspirations of the participants. In this respect the institutional needs are likely to vary with location, type and social expectations, among other factors. The institutional needs of a primary school located in an urban area, certainly, are not the same as of those located in a remote rural hamlet. They are different from those of post-primary institution too.

The instructional needs of those institutions also vary with location and type. They are derived from expected tasks. They must not only incorporate the desires and aspirations of the participants but must meet the instructional standards set by some external bodies such as the Ministry of Education, the West African Examinations Council (WAEC), the National Teachers Institute (NTI) or the Institute of Chartered Accountants of Nigeria (ICAN). Because of the external influence on the instructional needs, most instructional objectives of these institutions are streamlined. The implication here is that the courseware requirements of institutions within identical category, say junior secondary school, should not vary greatly, except for local and locational factors and constraints. But these may be intensified by the biased distribution system of the Ministry of Education.

When these needs are assessed the obvious result is the identification of specific tasks which on analysis yield a wide range of institutional and instructional objectives. These provide the initial criteria for evaluating the instructional materials and equipment in terms of their provision and utility. Gronlund<sup>9</sup> and other evaluation authorities accept that needs assessment forms the initial activities in any evaluation process.

## PHASE II: MEDIA ASSESSMENT

This phase comprises Availability Evaluation, Utilization Evaluation and Perception Evaluation.

a) Availability Evaluation: Availability refers to the actual physical existence of the coursewares within the institution. It includes provision of ready opportunities for mobilizing externally available ones for effective utilization by the institution participant.



Although availability evaluation is a very slippery phenomenon, the need to taxomise the coursewares is obvious. The rationale for this activity is underlined by the wide variety of coursewares. A large number of them can achieve any given instructional objectives much as many objectives can be achieved through the use of a given courseware according to Heidt (1978).

Inyang-Abia<sup>10</sup> points out that the classification of coursewares should be relative to the use to which each particular one is put. He posits that it is a categorical mistake to classify most of them exclusively by the features they exhibit. He therefore proposes a more functional approach to media taxonomy resulting in two additional classes (phenomenals and manipulatives) in addition to the print-audio-visual-classification commonly found in media literature. When this classification is used the researchers' functions can be better systematized.

The need to establish acceptable availability criteria for purposes of courseware assessment is obvious. It helps to streamline the evaluation results. It also provides a common basis for the assessment. It is obvious too that effective assessment must have acceptable reference. The need to establish locally acceptable criteria for universal application in various states in Nigeria is quite obvious. The AECT standard set by a point committee of AASL, ALA and AECT<sup>11</sup> is not only foreign-oriented but also too high for any meaningful use in Nigeria.

The factors affecting availability, for example: funds, lack of administrative and political support, production incapability and inadequate media education to mention just a few are built into this model. So are the suggestions for improvement.

b) Utilization Evaluation: Utilization refers to instructional development functions which according to AECT<sup>12</sup> bring the learners into contact with the instructional materials components to facilitate and evaluate students learning.

Utilization criteria must be established. This must examine the instructional objectives vis-a-vis coursewares. Walton<sup>13</sup> points out that the effectiveness of coursewares against their actual utilization must be closely examined and assessed.

The ASSURE model which according to Heiniah, Molonda, and Russell<sup>14</sup> assures effective utilization of the coursewares do provide a workable guide for utilization evaluation, particularly if based on the last three functions (utilizing materials, requiring learner response and evaluating the presentation, the materials, the learners and the presenter).

Utilization evaluation also calls for identification of constraints observed as affecting optimum performance. These may include teacher capability, knowledge of operation, accessibility of the coursewares or situational and infra-structural constraints. Constraints identification obviously goes along with suggestions for improvement; they should



be far beyond mere fault finding. They are in-built in this model.

c) Perception Evaluation: How the government of the day perceives the coursewares has profound effect not only on the provision and utilization of these materials but more importantly on the instructional personnel. Positive perceptions generate the political support required. It therefore indirectly influences both the provision and utilization levels. This in turn exerts direct influence on the instructional personnel attitude towards the coursewares. Therefore perception evaluation, as shown on the diagram above, occupies a central niche where both availability and utilization are directly affected.

Three areas of perception proposed for evaluation in this model are the philosophical, professional and socio-cultural perceptions. These areas are considered paramount for our study.

The philosophical orientation of a nation, state or any other human organisation for that matter, affects its objectives and means of achieving them. No less can be true for coursewares. The institutional philosophy affects its decisions on the selection design and use of coursewares.

On socio-cultural perceptions, Gagne and Briggs<sup>15</sup> point out that:

religions and cultural attitudes...  
help determine local reactions to various  
media.

How the coursewares are perceived in terms of the economic climate of the day also affects its availability and utilization.

The professional perceptions that affect the coursewares arise partly because of area of professional inclination and partly because of educational level. But generally, teachers have positive attitude to media utilization. Inyang-Abia (1984) found out that 94% of teachers sampled in Cross River State teachers colleges had positive professional attitude towards coursewares. Imogie<sup>16</sup> reports of positive attitude of faculty members towards media utilization. However, the positive perceptions are often counteracted by inadequate provision on the part of the authorities. Lack of relevant production and utilization skills on the part of most instructional personnel also counteract the positive perceptions.

However, when the various categories of perceptions are adequately investigated in relation to the institutional and instructional objectives, important research findings can be derived. These may help in making relevant instructional development decisions.



### Phase III: OUTCOME EVALUATION

The efficiencies of the coursewares utilization is affected by teacher competence, media characteristics, learner characteristics and instructional format in relation to instructional objectives.

This phase focuses on areas of efficiencies and deficiencies as an attempt to provide a balance-sheet summary of availability and utilization. The efficiencies point out areas where the relevant course wares are adequately provided and/or fully utilized, based on established criteria such as the institutional and instructional goals and objectives. Some reasons and instances are adduced in support of such efficiencies.

Deficiencies point out both inadequate provision and under utilization in relation to the established criteria. Reasons for such deficiencies in relation to the established criteria. Reasons for such deficiencies are also convincingly stated with adequate example. Information from "Considerations for Improvement" within the framework of Availability Evaluation, Utilization Evaluation and Perception Evaluation provide some data for this stage.

Side-effects resulting from both availability and utilization evaluation must also be determined. This may not be easy because of many intervening factors. But some positive side-effects such as learner and personnel preference, increased creativity and divergent thinking, improved attitude about coursewares, wider coverage of instructional content areas within shorter time, improved social climate and more time for other instructional activities can be inferred. Negative side-effects could also be inferred. These may include the dislike to spend a few a few extra house for preparing or reviewing the coursewares.

These successfully accomplished, the feedback loop recycles the strengths and suggestions for improvement. Each phase is affected both directly and indirectly through needs assessment.

It is the hope of this paper that the proposed model will be fully discussed, analysed, and synthesized for purposes of streamlining researches in areas relevant to it.



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