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A COST-BENEFIT ANALYSIS
OF THE USE OF
MODERN AIDS TO EDUCATION
IN THE SIX NORTHERN STATES OF NIGERIA

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by

Jefferson N. Eastmond

of

World-Wide Education and Research Institute

for

MODERN AIDS TO EDUCATION PROJECT

(USAID/Nigerian Ministries of Education/Washington County, Maryland)

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"Things don't happen. They are made to happen. And in the field of education they are made to happen by you and your members."

—John F. Kennedy
Speech to educators
(NEA Convention, 1963)

PREFACE

In analyzing a study of the type presented herein, there is a critical need for an accurate perspective of the total. It thus becomes imperative in some way to show where the emphasis should be placed on the descriptions and findings, and where the most important elements may be found. It is this kind of information that allows the reader to weigh the findings, summaries and conclusions, and make the most intelligent judgments and decisions arising from this study.

In gaining the desired perspective, the reader is first of all encouraged to see the Schools Broadcasting Unit as a very miniscule part of the total educational effort in the Six Northern States of Nigeria. The sum total of all expenditures for the SBU would constitute less than one-fourth of one per cent of the educational budget for these states. It may thus be seen that the SBU is experimental. Its work has been developmental. Basically, it has been a valiant attempt to adapt modern technological developments and media to the educational program of a developing country. Viewed in this context, the total amount spent for the SBU could be written off in its entirety as a research and development investment by the Northern States of Nigeria. It is probably true that a developing country should expect to spend a considerable portion of its educational budget for this type of research and development that would adapt methods, means, and technological improvements for appropriate use in its expanding school programs.

Furthermore, from the point of view of other donors, and particularly the U. S. Agency for International Development, the SBU efforts must be seen as a very small element in country development. Essentially, USAID has provided two, and occasionally three, technicians who were public school personnel actually serving in the Six Northern States. This study points out how ridiculous it is to expect such efforts to bring about any gigantic achievements. Even so, however, this study revealed that some giant strides have been made with such efforts (see Part IV).

As a second step in gaining the proper perspective, the reader is cautioned not to search for meanings, a voluminous tabulation of student hours viewed, personnel involved, achievement testing results, detailed costing information, etc. This investigation drew most of its basic data on costing and viewing, etc., from an earlier cost/benefit analysis study conducted by the International Institute of Educational Planning (IIEP). The perspective needed by the reader on this point is that the IIEP study was sufficiently comprehensive and objective to point out that the unit cost of educational TV broadcasting in the Six Northern States was inordinately high. The present investigation merely points out that the IIEP study was conservative in its unit-cost findings. It suggests that the unit costs are perhaps double those reported in the IIEP study. Moreover, it provides only sufficient evidence to show that a more detailed and objective type of microcosmic cost/benefit analysis would entail considerable investment of time and money, and would not warrant the cost--provided that the time and money were available for such a study, which they are not.

Getting the proper perspective on the IIEP study is somewhat akin to wanting to purchase an automobile that will give a per-unit mileage cost of not more than 4¢. If someone gives a preliminary estimate of a particular automobile cost of more than \$4.77 per mile, it would be foolish to spend additional time finding a more exact estimate as to whether the cost was indeed \$4.77, \$9.40, or \$12.00 per mile. Suffice to say the unit cost is too high to warrant further investigation.

This was the same conclusion this study arrived at for the SBU unit-cost for educational television broadcasts in the Six Northern States of Nigeria. The earlier IIEP study showed the unit cost to be approximately \$4.77 per student hour. In order to run a viable broadcasting operation, these costs should perhaps be more like 5¢ per student hour. The point is that the IIEP study can be considered accurate enough and accepted, since it shows that existing unit costs are far too high (see Part III).

The facts on high unit costing for educational television do not imply that such broadcasting should be discontinued. On the contrary, it simply asserts emphatically that the broadcasting, transmitting, and receiving patterns are now ready to be revamped through a planning effort to enhance the impact of the Schools Broadcasting Unit in the Six Northern States of Nigeria. The really great opportunities lie ahead.

Keeping these two major points in mind as they are cited in the preceding paragraphs will be helpful to the reader in getting at the most significant elements of this study. Furthermore, it will shed additional light on why the conclusions and recommendations given at the end of the study were made.

I. INTRODUCTION

"Education has become a major, if not the major, concern of the new independent states of Africa. At almost every point in the modernization process, education is the critical factor, for without it Africa's people would be unable to enter the modern technological world."

-- COWAN, O'CONNELL, AND SCANLON
Education and Nation-Building in Africa (preface)

Since 1964, the Washington County, Maryland, Board of Education (Hagerstown School District) has been under contract through the United States Agency for International Development (USAID) to provide technical assistance to the ministries of education in Nigeria, West Africa. The Hagerstown contract has provided services to assist in the successful expansion, improvement, and in some instances inauguration, of the use of radio and television in the formal education programs of Nigeria. The present contract is referred to as the Modern Aids to Education (MATE) project and has been scheduled to terminate or phase out during the calendar year of 1968.

During 1966 and 1967, Nigeria as a nation has been in political turmoil. In spite of the drastic events on the political scene, however, schools have continued to operate regularly in the Northern Region of the country and the MATE project has remained operational. It continues to assist in the regular programming of schools broadcasting in both radio and television, and among its various related activities, it is currently in the final stages of an evaluation of the impact of these broadcasts.

Purpose of this Study: Under existing plans and budgets, the Government of Northern Nigeria (GNN) is scheduled to be completely dissolved by April, 1968. No semblance of northern regional government is to exist after this date. The entire Northern Region will instead be officially divided at that time into six separate states. These will constitute a part of an overall federation of Nigerian states with a central government located in the city of Lagos.

With the dissolution of the Northern Regional Government in Kaduna in early 1968, there is some concern as to how the accumulated experience, material investments, and human capital associated with schools broadcasting can best be utilized in the long- and short-range development plans of Nigeria. Such matters are currently under consideration and deliberation by high-level government officials and civil servants. Crucial decisions must be made in the very near future.

These will have immediate and far-reaching implications for the future development of education in Nigeria.

It is therefore the overarching purpose of this study to supply such information, data, and analyses as may be helpful in making the wisest possible decisions in these matters concerning schools broadcasting. Specifically, this study will attempt to:

1. Execute a cost-benefit analysis of the currently operating schools broadcast activities, including the contributions of the MATE project

2. Forecast the educational milestones that must be achieved in the long-range future development of Nigeria, particularly in that section that currently constitutes the Northern Region
3. Explore, by means of the cost - benefit technique, the feasibility of various alternatives available for further use and possible expansion of modern aids to education in the projected development of education
4. Suggest the kinds of organization and administrative structures that would be conducive to further utilization of modern aids to education

Limits and Constraints on the Study. The data and information reported in this study are limited to those pertaining to the area now constituting only the Northern Region of Nigeria. Furthermore, the urgency for channeling cost-benefit analysis information into the decision-making process places a limitation on the time allowed for the study to be completed.

Another restriction on the study pertains to the data that were available. It seemed desirable to include whenever possible the estimates for 1967 data, even though such data would not be accurately available until months after the study needed to be completed. Thus, estimates of 1967 data had to be made on the basis of information available for the first three quarters of the 1967 year. In addition, the MATE project was currently engaged in a detailed evaluation of the impact of schools broadcasting. The results of this evaluation were regrettably omitted from this study since they were not yet available at the time this study was undertaken.

Procedures. A part of this study had to be conducted through a series of orientations and interviews with knowledgeable people in the United States and in Nigeria. A roster of the persons and organizations visited are presented in Appendix A.

Most of the basic statistical data were compiled from the statistical and planning offices of the Ministry of Education, Kaduna, and from the MATE project files and USAID, Kaduna. Additional data were obtained from the Broadcasting Company of Northern Nigeria (BCNN), the Ministry of Economic Planning, Kaduna, and some visits to Nigerian schools.

II. A 1967 BASELINE FOR MODERN AIDS TO EDUCATION IN THE SIX NORTHERN STATES OF NIGERIA

"There is no miracle in the field of economic, social, and cultural progress. The conditions of success demand work, investment, discipline, and unity. For all the citizens of a developing country, progress requires faith in the future, a sense of danger, and continuous effort; also required are sacrifice and self-denial."

-- FELIX HOUPHOVET - BOIGNY
Fraternite' (Abidjan, 1963)

In autumn 1967 (3rd term of school year), the Schools Broadcasting Unit of the GNN Ministry of Education was regularly transmitting 6 television and 8 radio educational programs each week. For the most part these transmissions could be classified as being for "supplemental and enrichment" purposes. Only one television and one radio program were presumed to be

used fully as direct instruction and these were English courses for primary class 5. In all television as well as radio transmissions, the programs were produced through a standard operating procedure that reflected the considerable planning and experience one would expect to find in a more or less routine operation.

School Utilization of Broadcasts. The actual usage of programs transmitted by the Schools Broadcasting Unit is difficult to determine accurately. Surveys of signal strength as well as utilization studies have been conducted by the MATE project. These, however, have resulted in only rough estimates of use and user evaluations since only about one-third of the questionnaires (1966 survey) were returned and no systematic follow-up nor even a statistical sampling of nonrespondents has been made.

The utilization of educational television has been far more limited than radio in the number and distribution of receivers and program participants. In the first place, the television signal has been transmitted only between the cities of Kaduna, Zaria, and Kano, a relatively small geographic area. In the second place, many of the schools in the signal area were without electricity. And finally, even among those schools that have television receivers, there were some that failed to utilize the sets for educational programs. This lack of utilization was particularly true in the secondary schools and partly applied to the teacher-training colleges.

Table II-1 provides some idea of the relative impact of educational radio and television in the Northern Region during 1967. Once again it must be noted that not all receivers were actually being used. By the same token, however, there may have been some additional private receivers brought to school or otherwise used to receive the programs regularly.

Table II-1. Total Number of Schools in the Provinces of Northern Nigeria in Relation to the Number Equipped With Radio and Television, 1967

Province	Primary Schools		Secondary Schools		Teacher Training Colleges		All Appropriate Schools		
	Total	Equip. w/TV	Total	Equip. w/TV	Total	Equip. w/TV	Total	Equip. w/TV	Radio Sets
Adamawa	135		6		1		142		53
Bauchi	189		5		5		199		155
Benue	433		16		5		454		256
Bornu	160		5		4		169		77
Ilorin	238		13		5		256		276
Kabba	289		13		5		307		157
Kaduna	35	15	6	4	2	3	43		46
Kano	253	17	8	5	6	4	267		445
Katsina	122		2		3		127		98
Niger	156		4		5		165		148
Plateau	234		9		2		245		193
Sardauna	98		2		3		103		65
Sokoto	184		5		4		193		181
Zaria	255	4	10	3	5	5	270		185
Total		36	104	12	55	12			2335

Source: GNN Ministry of Education

In order to better coordinate and utilize the radio and television broadcasts, two staff members (one a Hagerstown field specialist) visited schools. It has been their responsibility to give demonstrations, confer with teachers and pupils, check on installations and adjustments, and provide "feedback" and evaluation information.

Program Content and Related Teaching Materials. There has been some variety in programs from one term to another and from one year to another. However, some idea of program content can be gained from the 2nd term (spring) 1967 lessons given below by title, class level, and time allotted weekly.

Radio Kaduna

"Let's Talk English (Primary 1), 12 min., 3 per week
"Let's Talk More English" (Primary 2), 15 min., 2 per week
"We Can Talk English" (Primary 3), 15 min., 2 per week
"English With the Twins" (Primary 4), 15 min., 2 per week
"Straight for English" (Primary 5), 15 min., 3 per week
"English With Peter and Pauline" (Primary 6 & 7), 15 min., 2 per week
"Discoveries in Medicine" (Secondary and Teacher Training Colleges), 15 min., 2 per week
"Studies in Shakespeare" (Secondary and Teacher Training Colleges), 15 min., 2 per week

Television Kaduna

"Fun With Figures" (Primary 1), 20 min., 2 per week
"Straight for English" (Primary 5), 20 min., 3 per week
"What Is Science" (Upper Primary Classes), 20 min., 2 per week
"This Is Science" (Lower Secondary and Teacher Training), 20 min., 2 per week
"Men of the Past" (Secondary and Teacher Training), 20 min., 1 per week
"Growth of Modern Nigeria" (Lower Secondary and Teacher Training), 20 min., 2 per week

The direct teaching lessons, "Straight for English," are closely coordinated with a new, illustrated textbook and an accompanying teacher's manual. In all lessons the regular classroom teacher is responsible for the suggested preparatory and follow-up activities that are to accompany each lesson. Program notes and manuals of instructions for teachers are distributed well in advance to assist classroom teachers in the maximum utilization of each lesson.

It is the "Straight for English" program that constitutes the central focus of the schools broadcasting evaluation effort which was underway at the time of this study (September - October, 1967).

Staff Personnel of the Schools Broadcasting Unit (SBU). In 1967, the Schools Broadcasting Unit operated organizationally under the chief inspector of schools, who is directly responsible to the permanent secretary of the Government of Northern Nigeria Ministry of Education. Since the inception of the Schools Broadcasting Unit, a number of Nigerian staff members have been sent abroad for specialized training in the U.K. or the United States. Under the MATE project and an Indiana University contract, some six participant trainees have been sent to the United States to receive extensive undergraduate or graduate-level education.

In the autumn of 1967, the Schools Broadcasting Unit's staff authorization consisted of:

SBU Director (equivalent to an inspector of education)

- 1 Senior Education Officer (production)
- 4 Education Officers (production presentation, photography, publications, liaison, and utilization)
- 3 Assistant Education Officers
- 1 Grade II Teacher
- 1 Assistant Instructor
- 3 USAID Advisers (liaison and utilization, production, and graphics)
- 1 Peace Corps Volunteer
- 5 Clerks (3 are USAID supplied)
- 2 Messengers

Physical and Transmission Facilities. By 1967 the SBU was housed in a separate building (43 by 10 metres) at the Government Technical College. The building is concrete-block construction with a slab floor and a tin roof. Originally it was built as a shop building. It is somewhat inconveniently located being 2 or 3 miles distant from the transmitting studio and the Ministry of Education.

The SBU has considerable equipment available and in addition has offices and work rooms. The building contains no studio. A separate building at the Ministry is used primarily for preliminary rehearsals of television programs. There is adequate storage space at the Schools Broadcasting Unit building. A graphics area and dark-room are a part of the physical arrangements.

Education programs on radio are transmitted over both the Nigerian Broadcasting Company (NBC) and the Broadcasting Company of Northern Nigeria (BCNN) transmitters. Theoretically these provide blanket radio coverage, but field tests have shown that effective zones of signal strength are limited to relatively small areas.

Television programs are transmitted one-way from RKTv studios in Kaduna to Zaria and Kano by means of two microwave relay stations. Television signals are thus available throughout the central Kano plain.

III. MICROCOSMIC COST-BENEFIT ANALYSIS OF THE USE OF MODERN AIDS TO EDUCATION IN NORTHERN NIGERIA

"Nothing in the world can take the place of persistence. The slogan 'Press On' has solved and always will solve the problems of the human race."

-- CALVIN COOLIDGE

A microcosmic cost-benefit analysis is a procedure which attempts to identify the parameters of a particular system -- such as the Schools Broadcasting Unit -- and then estimate dollar equivalents for all inputs. It then requires one to calculate production outputs from the system. By means of such a procedure it is then possible to divide input costs by output and thus generate a unit cost figure for all production by the system under consideration.

For the uninitiated, there must be a caution issued that a microcosmic cost-benefit analysis is statistically "tricky" and economically complex. It must make several sweeping assumptions about what is included and what excluded, how costs must be divided on equipment or personnel

...serving several functions, and allot depreciation schedules for various types of investments, sometimes including human capital. Furthermore, because of the broad assumptions that must be made initially, it is almost certain that unit costs of production will show wide divergence among independent investigators.

Fortunately for this study, a microcosmic type of cost-benefit analysis had been published in 1967 on the School Broadcasting Unit in Northern Nigeria. This analysis was made by the UNESCO sponsored International Institute of Education Planning (IIEP) and covered all data available through 1965.⁽¹⁾ Since the findings of this IIEP study are germane to this investigation, some of these, together with some of the underlying assumptions (mostly found in footnotes herein), are as follows:

<u>Radio, 1965</u>	
<u>Input</u> (costs): Manpower Input (in man-months)	43
Current Costs on BCNN only	\$44,500 ⁽²⁾
Investments in production and reception	\$ 700 ⁽³⁾
<u>Output</u> : Broadcast time at BCNN (school programs)	97 1/2 hrs. ⁽⁴⁾
Broadcast time on NBC (school programs)	112 1/2 hrs.
Total output to primary schools from BCNN (student hrs. per year)	2.34 millions ⁽⁵⁾

⁽¹⁾ UNESCO: International Institute of Educational Planning, New Educational Media in Action: Case Study for Planners -- Volume III (Paris: UNESCO, 1967), pages 132-156.

⁽²⁾ Includes depreciation of 1,000 receivers assessed at an average price of ₦15, although no actual inventory of sets has ever been made...An annual rate of 20 per cent was used. (Rate of exchange: ₦1 = \$2.80).

⁽³⁾ Represents an arbitrary division for most shared equipment of three quarters to television and one quarter to radio:

"The reader is cautioned to note that no figure has been included for investment in transmission. Total BCNN at the end of 1965 stands at about ₦1 million, including some pre-operational expenditures; however, this does not include anything for land cost, since sites used were made available by the government."

While the \$700 shown does not reflect any reception costs, there was a \$42,000 reception cost shown for an earlier year, 1962. No training costs were included.

⁽⁴⁾ This radio programming over BCNN was for 1965 only and therefore does not reflect the benefits from the years of earlier broadcasting work over NBC. The 1965 figure represents a point in time when the program was running smoothly and does not carry heavy developmental costs.

⁽⁵⁾ In calculating the total broadcast output the IIEP study stated:

"We have used the average primary class size for Northern Nigerian schools -- thirty-six -- as the number of students per set, with the assumption that there is another class of the same size available to listen to the repeat broadcast over each set. (This is probably an optimistic assumption, but precise data are lacking.) Using these bases, the total output of the radio programme directed to primary schools and broadcast solely over BCNN amounts to 2.34 million student-hours per year." (Ibid., pages 150-151).

Average Student - Hour Cost (Ratio):

$$\frac{\text{Input}}{\text{Output}} = \frac{2}{3} \times \frac{\$44,500^{(6)}}{2,340,000 \text{ student hours}} = \$.013$$

Or 1.3 United States cents per student hour of broadcasting

Comments on the IIEP Study on Radio. From a careful review of the IIEP data and estimates, it appears that some of the assumptions were unwarranted, many of the statistics seem to be used selectively, and some of the conclusions leading to unit cost estimates were unreasonably low. Great gaps appear in any kind of substantiating evidence as to the qualitative or quantitative assumptions that were made. One can ordinarily excuse investigators whose basic estimates and assumptions are randomly off-target. The IIEP study, however, appears consistently to cite data or assume coverage, impact and costs that place the use of school broadcasts in the most favorable light and show unit costs at a minimum.

Some recent data and observations on utilization and impact are now available and were not at the time of the IIEP study. For example, the assumption that one-third of the broadcast utilization could be contributed to teacher-training was extremely high. From subsequent field observers reports, the utilization of radio by the secondary schools and training colleges was, and continues to be, practically nil.

Again, the assumptions used in producing an estimated broadcast output over BCNN of some 2.34 million student-hours per year is sheer fancy. With experience, it is known that broadcast utilization in the Region suffers because of poor signal coverage, lack of electrification, inadequate supplies of batteries, inability to time programs to curriculum, lack of repair facilities, difficulty of fitting broadcasts into syllabi, etc. It would, therefore, seem more than optimistic even to assume that one-half of all sets fully utilized one-half of the total broadcast throughout the year (including all repeated programs). Making this very generous assumption and then taking the actual average class size in 1965 of 35 (not 36 as reported), would mean that only about 850,000 student-hours could generously be calculated during the year.

Taking the two foregoing factors into consideration would immediately jump the unit cost of educational radio in Northern Nigeria to about 5.2 United States cents per student-hour instead of the 1.3 cents estimated by the IIEP study.

One further observation that would further reduce utilization, but which becomes important in "trade-off" benefits calculated, is that none of the radio programs broadcast in 1965 were direct teaching. All were supplementary or enrichment programs.

(6) The IIEP study used only two-thirds of the total cost in the calculation because:

"One-third of the radio-broadcast programme is directed at in-service teacher training. Unfortunately, there is no information on the audience of these broadcasts."

Television, 1965

<u>Inputs:</u> Manpower input (in man-months)	91
Investments in production, administration and reception	\$30,700 ⁽⁷⁾
Current costs of broadcasts on BCNN	\$154,700 ⁽⁸⁾
<u>Outputs:</u> Broadcast time (in hours per year)	79 1/4
Total output to all schools with TV equipment (student-hour per year)	32,400 ⁽⁹⁾
Ratio: $\frac{\text{Input}}{\text{Output}} = \frac{\$154,700}{32,400 \text{ student-hours}} = \$4.77 \text{ per student-hour}$	

Or a unit cost of \$4.77 per student-hour of television viewing. Each hour of TV lessons produced by the SBU, therefore according to IIEP, costs approximately \$3,800.

Comments on the IIEP Study of Television. All of the comments made earlier on the distorted use of assumptions and statistics used by the IIEP study to put radio broadcasts in the most favorable light must also be made about the study's analysis of television broadcasts. For example, more than half of the television equipped schools in the study were teacher-training colleges or secondary schools. Recognizing the extremely limited use of TV programs made by these schools would, in itself, jump unit costs from \$4.77 to more than \$9.00 per student-hour.

Assuming maximum utilization of all TV sets in the equipped schools in Kaduna, Zaria, and Kano is again simply wishful thinking. Experience has since revealed that set adjustment, poor reception, lack of electrification, and other types of logistic problems, together with curriculum-phasing difficulties and timing would realistically make primary-school utilization substantially less than 100 per cent.

All told, it appears that the IIEP unit cost estimates were unrealistically low in terms of the actual conditions existing in 1965. This generalization would also apply to the study's forecast of additional utilization in subsequent years.

In the discussion of alternative developments or "trade-off" possibilities, the IIEP cost-benefit analysis makes the installation of more TV sets in the primary schools a matter "of highest priority."

The study projects the cost of new sets, plus electrification of schools, in an attempt to sharply reduce unit costs. It then justifies, economically, the annual student-hour output in terms of the number of SBU staff members, and then defines the criterion of improved quality of teaching

-
- (7) Does not include investments for transmission facilities. All Indiana project investments were attributed to television.
 - (8) The allotment of current costs between radio and TV was made on the basis of actual broadcast hours. According to BCNN management, the staff costs for TV were 3.8 times those used for radio. The IIEP used this ratio in all calculations.
 - (9) Output calculations assumed maximum utilization.

on the basis of salaries. This line of reasoning is quoted below in order to acquaint the reader with the technique as well as the conclusion reached.

If we assume that the quality of the teaching made available by the television lessons is the same as that which would be provided if the same classes were taught by teachers of this higher grade, we can then say that the television programme becomes economically advantageous at the point where the total cost of the programme is equal to the additional sum required to produce an equivalent student-hour output in classroom teaching by higher grade teachers. (The difference in salary between a grade II and a grade III teacher was calculated at £1,400 (or (\$3,920). In Northern Nigeria this point would be reached with an installation of 757 receivers, all in primary schools and with the same audience assumptions used above. At this point, the total cost of the television programme would be \$271,500 and student-hour output 2,625,000. The same student-hour output could be produced by about seventy high-grade classroom teachers whose additional cost (\$3,920 each) would roughly equal that of the television programme.

It is apparent from this calculation that, with only 500 primary schools in the reception area, it is impossible to reach this level of operations under present conditions. However, as soon as output passed the minimum level defined earlier, 227,000 student-hours, the programme would be expanding the utilization of highly qualified teachers and might be justified on those grounds.⁽¹⁰⁾

A Perspective on the Findings of the Microcosmic Cost-Benefit Analysis. In 1965, the average current cost to educate a primary-school child for an entire year was approximately \$23 (£8,22).⁽¹¹⁾ This makes the unit cost of educational television of \$4.77 per student-hour, according to the IIEP analysis, seem incredibly expensive. Not quite the same conclusion is to be drawn from the radio broadcasting analysis with its IIEP estimated cost of 1.3 cents (\$.013 per student-hour). It must be recognized, however, that both of these unit cost estimates were found herein to be unreasonably low in terms of the realities of the prevailing conditions.

It is, therefore, asserted that making an additional cost-benefit analysis of the microcosmic type would prove to be of little practical value. Regardless of the large amount of effort that must go into such a study, it is virtually certain that the unit cost calculations would be substantially higher than those found in the IIEP study.

Even the overly optimistic findings of the IIEP study appear to be inordinately high in terms of the experience of other developed and developing countries. This is revealed in the following paragraph:

School television costs range from 5 to 60 cents per student-hour, depending on the size of audience, the amount and type of programming, and cost structure. Hagerstown,

(10) Ibid., pages 154-155.

(11) Jefferson N. Eastmond, School Finance in Northern Nigeria, 1965 (Kaduna: Ministry of Education, 1965). 94 pages.

which teaches the core of the entire primary and secondary curricula by television, spends on it 20 cents a student-hour, \$31 per pupil year. School radio is cheaper. Thailand broadcasts a substantial program to 600,000 pupils for about one cent per student-hour. (12)

It is the conclusion of this present investigation, therefore, that the microcosmic type of cost-benefit analysis in Northern Nigeria, will, by itself, fail to justify adequately the continued use of educational television and radio in Northern Nigeria as they are presently operated and under existing technical designs. Costs will appear prohibitive in terms of benefits derived unless the total effort can be recast in a different perspective. This, however, is precisely the purpose of the subsequent chapters of this study.

(12) Wilbur Schramm, Philip H. Coombs, Friedrich Kahnert and Jack Lyle, The New Media: Memo to Educational Planners (Paris: UNESCO: International Institute for Education Planning, 1967). Page 152.

IV. MACROCOSMIC COST-BENEFIT ANALYSIS OF THE USE OF MODERN AIDS TO EDUCATION IN THE SIX NORTHERN STATES

"We are proud of our people's recognition of the value of education. Their concerted effort in the building of schools and other social activities is most gratifying. Educational institutions, unlike business enterprise, do not exist and operate for profits in dollars and cents. They exist to perform public services, and they are judged by the effectiveness and economy with which they perform services."

-- EMPEROR HAILE SELASSIE (1961)

A macrocosmic type of cost-benefit analysis is one that defines the parameters of the universe of realm within which a system operates. It then compares the system--such as the Schools Broadcasting Unit--with other systems that serve comparable objectives within the same universe. Furthermore it attempts to assess the system's performance and benefits in terms of its own objectives, one or more of which may be related to costs.

With the foregoing definition to serve as a general orientation, a macrocosmic cost-benefit analysis will now be executed.

Definition of Parameters and Design of the Analysis. The parameters of the universe encompassing the system to be examined--the School Broadcasts in Northern States--outline three separate realms or dimensions. Each of these dimensions is generated automatically by the stated as well as the implied objectives of the system. It is these dimensions with their underlying objectives that give meaning and purpose to the system. Such meanings permit a kind of analysis that transcends the Philistine type of cost-benefit analysis presented in the previous chapter.

The three realms or dimensions for this analysis are: AN EXPERIMENT IN EDUCATION BY THE GOVERNMENT OF NORTHERN STATES. Following the recommendations of a 1955 survey report by an expert from the British Broadcasting Corporation, the Northern Region's Ministry of Education established the School Broadcasting Unit in 1957. Emphasis was given to the instruction of the English language through radio, and in 1958 the Ministry built its own studio..

After independence, the early 1960's saw the formation of the BCNN which, through a subsidy from the Ministry of Information operates the combined radio-television facility in Kaduna. With the creation of the BCNN transmissions, the SBU conceived of educational telecasting to be a logical extension of its radio work to improve and supplement classroom instruction throughout the North.

It may thus be seen that the SBU was inaugurated by the Government of Northern States directly through its Ministry of Education and indirectly through its Ministry of Information. It may be inferred that the SBU and its activities were begun as an experiment by the Government of Northern States to explore ways of utilizing new types of communication media for more effectively educating its vast uneducated citizenry.

A SERVICE BY THE GOVERNMENT OF NORTHERN STATES AND OTHER AID DONORS.
Without any thought of a research or experimental design, the Government of Northern States, and later some other aid donors, have launched into an effort to maximize the use of new communication media to educate as much as possible the people of Northern States.

It may be stated without reservation that the most precious of the Northern States resources are its developed human resources. Conceptually, it is appropriate to think of the Region's 30 million people, each with his educational potential, and each with some level of informal, and in some cases formal, educational attainment. This totality of the population with varying amounts of educational attainment can then be summed up all together into a Gross Product of Education (GPE). The idea of a GPE as a summation of a country's wealth in developed human resources is similar in concept to a Gross Domestic Product as a measure of a country's material and commodity resources. Whereas the latter is measured in pounds or dollars, the former is measured in many years.¹

The thrust of the SBU was thus intended to increase the GPE for Northern States, that is, to enhance the development of its human resources by reaching as many persons as possible through formal and informal education means, using the new types of media, primarily radio and television.

A PILOT STUDY BY VARIOUS AID DONORS AND NIGERIA TO EXPLORE THE POTENTIAL OF THE NEW MEDIA IN EDUCATING PEOPLE IN A DEVELOPING COUNTRY. Even in its earliest stages, the SBU produced programs for broadcast over the national radio network operated by the Nigerian Broadcasting Corporation (NBC). Much later, in 1963, USAID funded a Nigeria-wide contract between the various ministries of education and the Washington County (Hagerstown), Maryland school district.

The experimental attitude of the Nigerian Government was manifested in the fact that the Hagerstown-USAID project was to be initiated separately and was to follow independent lines of development in each of four operations: the Federal, the East, the West, and the North. This same configuration of effort confirms USAID's concept of the Hagerstown project as an

¹ A contraction for "man-years of education." For further details on the GPE and its calculation, see Jefferson N. Eastmond, Measuring the Gross Product of Education for the State of New York (Albany: State Education Dept., 1967).

experimental, pilot project. In addition, USAID's experimental interest was expressed by its funding of other "new media" projects in other developing countries and then financing in 1965-66 an over-view study by the IIEP of a number of these projects, including the one in the Northern States.²

In each of the three realms or dimensions described in the foregoing paragraphs a description will be attempted of the various costs to the Government of Northern States and to USAID and other aid donors, such as the U. K. through its G.V.S.O. personnel and the U. S. Peace Corps through its volunteers. Graphically, the design of this macrocosmic cost-benefit analysis is presented in Figure 1.

Figure 1. Graphic Representation of the Parameters and Design of the Macrocosmic Cost-Benefit Study

Costs (Outputs)	Dimensions of Benefits (Outputs)		
	An Experiment in Education by the GNS	A Service by the GNS and Other AID Donors	A Pilot Study by Various AID Donors and Nigeria
Investments (a) GNS (b) Aid Donors (c) Participating Schools	MTP ³	MTP	MTP
Current Efforts (a) GNS (b) Aid Donors (c) Participating Schools	MTP	MTP	MTP

Investments. There are various types of investments that have been made into the SBU. These can be regarded as (1) physical equipment, facilities, and properties that can be expressed in terms of money; (2) time, as an essential commodity that cannot be expressed in terms of money, but an essential and crucial element for consideration of education in developing countries; and (3) personnel, as expressed in terms of an investment of training and experience in people essential to the success of any system. Each of these types of investment will first be presented and then a brief discussion of each will be made in terms of the three dimensions of this analysis.

FACILITIES AND EQUIPMENT INVESTMENTS. Investments in equipment have come from four sources. USAID/Hagerstown supplied some of the production equipment and many radios and television receivers. USAID/Indiana furnished most of the graphics equipment. The SBU's budget has purchased some equipment, and the furniture and office space are financed through

² International Institute of Educational Planning, New Educational Media in Action: Case Studies for Planners, Volumes I, II, III and Memo. (Paris: UNESCO: IIEP, 1967).

³ MTP represents analysis in terms of money, time, and personnel.

various accounts of the GNS. The amount of these investments (excluding BCNN's for transmission) to 1965 are presented in Table IV-1.

Table IV-1. Investments in Programme Production and in Reception of School Broadcasts

	Up to March '62	1962	1963	1964	1965	Total
Television						
Production & administration	\$28,600	\$ 1,600	\$ 3,700	\$22,800	\$ 2,100	\$58,800
Reception	5,500	--	--	6,600	28,600	40,600
Total	\$34,000	\$ 1,600	\$ 3,700	\$29,400	\$30,700	\$99,400
Radio ¹						
Production & administration	13,800	--	800	1,300	700	16,600
Reception	--	42,000	--	--	--	42,000
Total	\$13,800	\$42,000	\$ 800	\$ 1,300	\$ 700	\$58,600
Grand Total	\$47,800	\$43,600	\$ 4,500	\$30,700	\$31,400	\$158,000
of which, foreign exchange ²	\$ 9,600	\$43,600	\$ 4,000	\$26,500	\$ 7,800	\$ 91,400

SOURCE: International Institute of Educational Planning, *op. cit.*, Vol. III, page 146.

All figures are converted on the basis of the official rate of £ = \$2.80.

All the years are financial years.

1. These investments also benefit the school broadcasts through NBC. Necessary adjustments have only been made in current costs.
2. All equipment purchases. There is a radio-assembly plant in Nigeria, but the foreign component is very high. Import content of other investments (construction and furniture) has not been calculated.

In describing the nature of the Schools Broadcasting Unit's investments, the IIEP study stated:

Within the total investment, some 70 per cent accounted for by equipment, fixed and movable mainly electronic items and cars; most of this represents an expenditure of foreign exchange. Since it would be almost impossible to trace accurately the actual costs of the various facilities used by the school broadcasting unit, a replacement-cost value for the space currently used - plus an additional amount for sound-proofing, etc. - has been employed in the table. The resulting figure has been used as if the space had been available from the start of the programme. All Indiana project investments were attributed to television. It was possible to distribute the Hagerstown investments between radio and television. The reader is cautioned to note that no figure has been included for investment in transmission. Total BCNN investment at the end of 1965 stands at about 1 million, including some pre-cooperational expenditures; however, this does not include anything for land cost, since the sites used were made available by the government.⁴

⁴ IIEP, *op. cit.*, Vol. III, page 145.

INVESTMENTS IN TIME. The Government of Northern States has made a large and precious investment of time into the SBU. There is no possible monetary equivalent for this ingredient.

From the inception of the idea, time was required to secure an expert and then to undergo an extensive survey in 1955. It took additional time for the survey recommendations to be implemented into Ministry of Education action with the creation of the Schools Broadcasting Unit in 1957. Pioneering efforts to recruit personnel and produce programs for radio broadcasts required months of time in 1958, but have repeatedly saved time since that year by being re-broadcast over and over again from these early recordings of English lessons for primary classes 1 to 6.

It took time for the Ministry of Education (MOE) to build a production studio in 1958 and 1959. Additional months were required after independence was gained in 1960 to educate the Northern parliament to the idea of establishing an expanded transmission system for both radio and television broadcasting. And then forming the corporations, raising the funds, and building the transmitting towers and relay stations was not something that happened overnight. Similarly, the six-months of lead time prior to actual television transmission was busily spent with the SBU director going to the United Kingdom to observe educational telecasts and then returning to help in the preparation of scripts and production materials for the first term of television lessons.

It took an additional six months after television was successfully operating in Kaduna to extend the signals to Zaria and Kano. It was during this period that considerable staff time was spent in the installation of receiving sets in schools and acquainting teachers with operating instructions and orientations to forthcoming programs.

In 1962, when the SBU began to receive assistance from the United States, the USAID had already invested time in obtaining a responsible contractor to furnish audio-visual experts to the Ministry of Education. Furthermore, the MATE-Hagerstown/USAID contract for furnishing two U.S. technicians at the beginning of 1964 took time for recruitment, orientation, adjustment, and service. There has been a lot of time spent since 1964 in servicing the MATE project. In summary, it may well be that the most valuable investment into the SBU has been time invested in the try-out of new communication media to begin to assist in the education of the Northern Nigerian people.

INVESTMENTS IN STAFF PERSONNEL. It is not always possible to accurately assess in monetary amounts the kinds of investments that are made in people in preparing them to perform successfully in carrying out complex tasks or operations. These investments represent a combination of competent persons in a state of readiness and on site, an appropriate training program of quality, and time.

Some notion of the complexity of calculating this type of investment is given by the IIEP staff in attempting to analyze the BCNN transmission costs. It was stated:

These figures do not include the cost of training activities, which were fairly substantial: twenty-four staff members have been sent for training programmes of varying lengths and under the sponsorship of a number of agencies. It was impossible to estimate the cost of this staff training.⁵

⁵ ibid., page 147.

Some notion of the amounts of competent, high-level manpower that have been required in the Schools Broadcasting Unit's operations is given in Table IV-2.

Table IV-2. Manpower Input at the School Broadcasting Unit (in Man-Months)¹

	Up to Mar. '62 ²	1962	1963	1964	1965
Television programmes					
Ministry of Education professional staff of which, training	9 (3)	36 (5)	47 (7)	58 (21)	59 (19)
Foreign assistance staff					
professionals	5	14	28	29	11
volunteer	-	-	12	20	21
Total	14	50	87	107	91
of which, training	(3)	(5)	(7)	(21)	(19)
All radio programmes					
Ministry of Education professional staff	15	15	27	37	40
Foreign assistance professional	1	2	5	8	3
Total	16	17	32	45	43
Television and radio programmes					
Ministry of Education professional staff	24	51	74	95	99
Foreign assistance staff	6	16	45	57	35
Clerical and technical staff	12	24	24	52	52
Grand total	42 (3)	91 (5)	143 (7)	204 (21)	186 (19)

1. On the assumption that the work for educational television started in September, 1961.
2. All the years are financial years.

Under the USAID contracts related to the Schools Broadcasting Unit's operations, six participant trainees have been sent to the United States for special training. While difficult to calculate this investment in terms of money, it does represent a very crucial ingredient to the success of the SBU. The importance of this investment is pointed out in a preceding quotation herein by Harbison when he stated:

Modern dams, power stations, textile factories or steel mills can be constructed within a few years. But it takes between ten and fifteen years to develop the managers, the administrators and the engineers to operate them.⁶

⁶ Frederick Harbison, Investment in Education (Lagos: The Government Printer, 1960), page 50.

Recurrent Costs. The recurrent efforts as cyclical inputs are also to be measured or described in terms of (1) elements that can be expressed in terms of money; (2) time; and (3) personnel.

MONETARY INPUT. The amount of the SBU's current expenditures on radio and on television are given by source annually through 1965 in Table IV-3.

Table IV-3. Current Expenditures: Type of Expenditure and Sources of Finance (in U.S. Dollars)

Financial Years	Total Expenditure	Deferred or Notional ¹	Total Cash Expenditure	Financed by		
				Government ²	Aid Donors	Others ³
Television						
1962 (up to Mar.)	\$ 37,900	\$ 5,000	\$ 32,900	\$ 22,300	\$ 10,100	\$ 500
1962	117,300	21,500	95,800	67,300	27,600	800
1963	171,700	25,800	145,900	64,700	80,300	800
1964	199,400	25,500	173,900	65,700	106,900	1,300
1965	154,700	24,100	130,600	68,800	60,400	1,400
Radio						
1963	23,500	10,800	12,600	4,100	1,000	7,500
1964	38,000	12,300	25,700	12,200	6,000	7,500
1965	44,500	12,200	32,300	18,000	6,800	7,500

SOURCE: International Institute of Educational Planning. *Op. cit.*, page 147

1. Depreciation of equipment and notional interest rate on investments
2. Including expenditure through BCNN, part of which is borne by the partners in the enterprise
3. Participating schools

From the table it may be seen that with the exception of the years 1963 and 1964 for TV only, the largest share of expenditures has consistently come from the Government of Northern States' contributions.

TIME. Some idea of the recurrent time expended annually in the production of programs can be gained from examining Table IV-4.

Table IV-4. Quantitative Output of the Broadcasting Unit since 1961 (in Hours of Broadcast Per Annum)

	1961	1962	1963	1964	1965
Television on BCNN Total ²	12	69 3/4	79 3/4	89 1/4	79 1/4
of which, original (estimated) ²	2 1/2	20	30 3/4	34 3/4	30 3/4
Radio on NBC Total ²	65	75	82 1/2	102 1/2	112 1/2
of which, original ³	7 1/2	10	20	25 1/2	16 1/4
Radio on BCNN Total ²	--	--	32 1/2	97 1/2	97 1/2
of which, original ³	--	--	2 1/2	10	15
Radio on both NBC and BCNN Total ²	65	75	82 1/2	200	210
of which, original	7 1/2	10	20	35 1/2	31 1/4

1. The years are financial years.
2. Including repeats and intermissions.
3. Programmes newly produced by the section during the year. The television programmes here included consist of fully original programmes and of those made by modification of existing films or tapes.

SOURCE: International Institute of Educational Planning, *op. cit.*, page 150

The hours shown, of course, do not include those devoted to writing script and rehearsing original programs, producing props, servicing equipment, carrying out demonstrations and liaison work, etc. The amount of recurrent time required for these activities can be ascertained from the data in Table IV-2.

PERSONNEL. The recurrent personnel required to sustain the meager operations of the SBU are shown in Table IV-2. The number of staff personnel has remained relatively constant from 1965 to 1967. During this latter year the staff included a director, a senior education officer, 2 education officers, 3 assistant education officers, an assistant instructor, 3 USAID advisers, a Peace Corps volunteer, 5 clerks, a messenger, and a laborer.

Analysis of Investments, Costs, and Benefits. Earlier in this chapter the three dimensions served by the SBU were outlined. Next the various investments and costs were tabulated and described in terms of money, time, and staff personnel. The task now to be undertaken is to analyze these investments and costs in terms of the basic dimensions of purposes of the SBU.

AS AN EXPERIMENT IN EDUCATION BY THE GNS. The philosophy of an experiment is one of try-out and research. It is an attempt to learn how a given idea, instrument, or system will work under certain conditions.

In this instance it was the GNS trying to test the feasibility of educational radio and television to supplement, improve, or widen the opportunities for education in the Northern Region. Assuming the experiment was now completed, we should want then to ask such questions as: What was learned? Did the activities successfully test the use of the media as the experiment was supposed to do? That is, how were the investments and costs made in relationship to the benefits derived from the experiment? Let us now attempt to answer these questions one at a time from the data compiled and from the descriptions of the SBU's performance.

It has been learned that a SBU can be established and function in the area to be served by the six northern states of Nigeria. That is, it is known to be technically feasible.

It has also been learned that the use of television and radio are professionally feasible media to use for direct instruction as well as supplementary or enrichment instruction within the regular school curriculum.

In addition, it has now been learned that under the various conditions of the Region that the logistical and support problems are unusually difficult. That is, obtaining the proper type of equipment at the right place and time, and then keeping it well maintained and repaired are difficult and expensive problems in terms of money, time, and personnel.

Moreover, it is now known that as the system was to operate within the experimental design, its reach, utilization, and impact have proved to be extremely limited. Far greater coverage and utilization must be achieved in order to make these media economically viable in the Region. It has been learned that the present arrangements are inadequate to accomplish this, but that elements of the system can perhaps be fashioned within a new design to meet such an objective.

Let us now answer the question as to whether such learnings could have been acquired in some other way. The answer appears to be that there was probably no other way to discover how such a system would function within the socio-economic, physical and cultural setting of the Region and that an actual try-out was therefore necessary. It appears that few such answers gained from other similar experiences, even from the other regions of Nigeria, could have fully--or even partially--provided the same learnings.

Is it then possible to state that the experiment was a success, even in the light of the extremely high unit-costs revealed through the microcosmic cost-benefit analysis of the previous chapter. The answer is an unqualified yes, because in the spirit of experimentation, unless specifically emphasized, the costing problem is normally of only relatively minor importance. In the overall viewpoint of experimentation, some experiments can be expected to fail completely. That is the philosophy of an experiment. If it were known initially that it would succeed, then it could not be said to be an experiment.

It must therefore be concluded that as an experiment in education by the GNS, the SBU activities were completely successful. They showed conclusively--like no other procedure could--that such a unit was technically, professionally, and logistically feasible in the Northern Region of Nigeria.

AS A SERVICE BY THE GNS AND OTHER AID DONORS. By just how much has the Gross Product of Education (GPE) been increased by means of the SBU? If the service dimension of the SBU has been successfully served, then there must be some evidence of its impact

in the measurable development of the vast human resources of the Region.

According to the 1963 census, there are about 30 million people in the Region and this is estimated to be increasing at the rapid rate of 2 1/2 per cent per year. More than 90 per cent of this vast segment of the world's population is illiterate. Something like 75 per cent of all primary-school age youngsters are not in any kind of school, primary or Koranic. And more than 95 per cent of the secondary-school age youngsters have never been inside a post-primary school of any kind. University education has thus far reached an almost infinitesimal part of the population, and adult education programs have not even kept within sight of meeting the needs of the population increase, to say nothing of affecting the great untouched masses. It is in this setting that we must assess the success of the SBU in the service dimension.

At its zenith, the SBU could count only 80 television sets, and a substantial portion of these were inoperative, being used to only a small degree in receiving school broadcasts, or un-electrified. With the operating sets in participating schools, the only direct teaching program, inaugurated only in 1967, was being transmitted only 20 minutes a day for 3 days a week of the regular school year of 27 weeks. The other telecasts were given in 20 minute doses only once per week (except for a repeat) and were even then only of a supplemental or enrichment character. Even less is known about the actual impact of the radio broadcasts, but here again, only one program of 15 minutes per day given 3 times per week--and inaugurated in 1967--is supposed to be direct teaching. All others, given with less frequency, are supplemental types of programs.

In the author's considered judgment, a more extensive and carefully conducted survey of the SBU's impact on lifting the level of education, the GPE, of the North would lead to the same obvious conclusion that can be inferred from the foregoing paragraph. Namely, the SBU's impact on the GPE has been relatively so infinitesimally small as to be negligible.

There are, however, some additional observations to be made in order to put the preceding conclusion into some kind of perspective. In the first place, we are talking about institution-building in Africa, and while the SBU failed in this dimension it is almost impossible to point to any other system of comparable magnitude in the North that has succeeded. From a cost-benefit analysis point of view, it defies the best minds even in retrospect to identify other channels or institutions--including schools or universities--where the same, relatively small amount of costs could have been spent to reap more benefits as far as the GPE is concerned.

The problem under discussion here is one of the GNS committing too few resources in an attempt--more accurately, in a gesture--to solve an enormous problem. Attempting to affect the lives of a significant part of 30 million scattered and diversified human beings with the paltry sums spent on the SBU may be regarded as the height of optimism. Such optimism is perhaps exceeded only by the aid donors such as USAID. For USAID to seriously expect a significant impact on the North's GPE by sending 2 or 3 technicians into the area for 4 years and spending a few dollars for equipment, training, etc., is optimism almost beyond imagination. Such gestures were faint indeed when one reflects on what is currently known about the problems of effecting social change on such a vast scale. This challenging problem of lifting the GPE in the six northern states of Nigeria remains as a challenge to not only Nigeria, but to all other countries of the world.

A PILOT STUDY, IN AN INTERNATIONAL SETTING, BY VARIOUS AID DONORS AND NIGERIA. When considering the phase of the SBU project that was viewed as a pilot study,

there are a few observations that may help determine whether or not it was a success. One of these is merely the fact that the SBU project was written up in a USAID financed study by the International Institute for Educational Planning. The SBU in Northern States served as a case study in what was supposed to be an investigation into "new educational media in action."

Another indicator of the SBU project's success is the fact that virtually none of the other regional projects of a similar nature in Nigeria was successfully operative at the time this study was conducted (September-October, 1967). It was conceded informally by both USAID administrative personnel in Nigeria and by Hagerstown technicians that the SBU project in the Northern Region had been the most successful of the TV-radio projects in Nigeria.

With these blocks of evidence of the project's success as a pilot study, the question of costs in relation to benefits must also be dealt with. How, one might ask, can the relatively high per unit costs of the project be reconciled with the idea of its being generally considered as a success? The answer, as in the first dimension of purpose, lies in the fact that it was a pilot project which makes it somewhat akin to an experiment. Under such a purpose, the cost factors assume a position of only secondary importance. There was no mention of attaining low per unit costs in any of the contracting arrangements. Basically, this was not expected, for what we are dealing with here has some relationship to the way other pilot studies are conducted, for example, a new model of automobile. The first, or pilot model of a new car is relatively of enormous expense because most of the parts must be hand-made and there is no reduction of cost factor in terms of mass production. Similarly, the SBU was developed as a pilot study. But, as with the model automobile, it can now be reproduced or redesigned and mass coverage achieved with a low per unit cost. This stage, however, is the next step to be taken, and is not, strictly speaking, a part of the pilot study itself.

With the foregoing considerations in mind, it can be rather safely concluded that as a pilot study in an international setting, the project has been successful.

V. PLANNING FOR THE FUTURE USE OF MODERN AIDS TO EDUCATION IN THE SIX NORTHERN STATES

"The universal surge of progress of the second half of the twentieth century offers to education an inspiring challenge. In fact, mankind is passing through a profound mutation caused by three explosive factors: the increase of population; the speed at which certain knowledge becomes outdated and technical progress advances; and political emancipation. As a result, education must also undergo a radical mutation on a scale which can hardly as yet be fully appreciated. Many more people have to be educated for a continually increasing span of their lives so that they may absorb an ever expanding and changing body of knowledge."

-- RENE MAHEU
Director-General of UNESCO (1967)

On April 1, 1968, Nigeria enters into a new form of political government. What has constituted the Northern Region will then begin to function as six different states. At that time, the regional government of Northern Nigeria (GNN) will be completely dissolved. The regional Ministry of Education will exist no more.

In the interim period between now (October, 1967) and early in 1968, considerable planning must be done with regard to the Schools Broadcasting Unit (SBU) and some significant decisions with long-range implications must be made. It is the purpose of this chapter to draw on the experience of the past and facts as they can be assembled in order to assist the decision-makers. The decisions they will make will shape the future of education and thus determine to a great extent the destiny of the six northern states of Nigeria.

Conservation of Resources. By reference to the previous chapter, some notion can be gained of the large investment of money, time, and personnel that has gone into the creation and operational capacity of the present SBU. It is crucially important that these investments be consolidated and remain intact for an interim period after the Northern Ministry of Education ceases to broadcast radio and television programs. This will necessitate two separate steps that should be taken very promptly.

STEP 1. Bring all radio and television sets and equipment from all participating schools and the SBU into a central storage place for routine maintenance service and repairs and safe-keeping. All such equipment, and some of it is very expensive, should be safeguarded until its further use is determined. Unless this action is taken, it is quite likely that such valuable equipment may rapidly disappear or fall into a state of disrepair. Consolidating this equipment in good workable condition may provide a springboard to some significant educational developments that will be discussed later in this chapter.

STEP 2. Hold together in one functional unit all of the technical and professional staff of the SBU. The skills, knowledge and talents of this group have been a long time in developing and represent an intricate functioning organization. Such an organization, as it concerns radio and television production, is similar to a watch. All parts of the unit must operate together in a synchronized way or else the total operation is crippled or must halt altogether. Without the mainspring of a director, the balance wheel of liaison workers, and the inter-related cog-wheels of production, transmission, repairs and maintenance, the total organization may cease to be capable of functioning.

Organization and Administration. As the Ministry of Education is dissolved on the last day of March, 1968, the SBU will have to be shifted into the jurisdiction of some other agency or institution. At least the following four possibilities can be considered:

- (1) Transfer the SBU directly to the Federal Ministry of Education, where it would continue to function as a unit.
- (2) Shift the SBU from the Ministry of Education in Kaduna into the Institute of Education at Ahmadu Bello University (ABU) in Zaria.
- (3) Arrange for the SBU to become an integral part of BCNN, a private commercial firm, half the stock of which is owned by the present GNS.
- (4) Terminate the SBU, liquidate its assets and reassign its personnel. This action would result in a virtual loss of the total investment thus far.

Even the foregoing list does not exhaust all of the possibilities. For example, although in the author's judgment it could be a grave mistake, it would be possible to divide the SBU's functions. This would mean a separation of the radio function from the television function, and then the disposition of each of these could be determined separately, according to the above list of alternatives.

It is the considered judgment of this investigation that the SBU's future disposition should be given priorities in the order listed above. The best and most prudent course to follow would be to have the SBU made an integral part of the Federal Ministry of Education. This course, as now envisioned, would allow the SBU to continue on with its regular operations if the new governing body deemed such action as appropriate. Providing uninterrupted service and shifting emphasis or launching out into different patterns of broadcast programs or coverage only after careful planning and in the rhythm of the regular school program appears to have great merit.

In addition, it may possibly be desirable in the long run to have the SBU remain in Kaduna as a subdivision of the Federal Ministry of Education serving geographically best in its transmission of broadcasts to the six northern states and adapting its programs and time schedules in a way that best fits the development of education in each state.

In the considered judgment of the writer, the next wisest action appears to be the second alternative listed, namely, transferring the SBU from the Ministry in Kaduna to ABU in Zaria. At least one other supplementary service, the correspondence courses, should perhaps be transferred at the same time for the two services can be usefully combined.

There are many considerations that favor the transfer of the SBU to the ABU in Zaria. As the Northern States Government is dissolved at the end of March, 1968, ABU will become an autonomous institution serving the educational needs of the various states. It will begin to be the only link between the states and higher education. ABU can provide the leadership, research and service necessary to exploit the potentialities of the SBU and successfully integrate its offerings into its own programs.

The Institute of Education at ABU has objectives compatible with those of the SBU. Furthermore, within the Institute is an existing audio-visual education department that could profitably and compatibly absorb the SBU. The professional staff of the unit could be recognized as regular faculty members and usefully serve in a variety of training programs.

Another advantage of the SBU's shift into the Institute of Education resides in the importance of careful planning and conducting feasibility studies prior to launching out into new patterns of broadcast programs and coverage of radio or television. For example, it may be thought to be desirable to suspend educational TV transmission except in Kano City, where there are many more pupils to be served than are now in school, where there is an acute shortage of well-qualified teachers, and where existing schools and faculty members have already had some experience with educational TV. Capitalizing on the fact that the Kano Teachers' College already has a closed-circuit TV arrangement that could be utilized with either coaxial cables to schools (\$3000 per mile) or with a small and inexpensive low frequency transmitter (about \$12,000) could very well provide the large student population coverage or "critical mass" in costs and benefits so necessary to warrant large blocks of direct instruction at a very low student-hour costs. The faculty at ABU, with economists, electronic engineers, and other experts on the faculty would be in a position to conduct thorough-going feasibility studies so that separate states or local education authorities may find it advantageous to use educational TV and finance it quite independently. Furthermore, the SBU's becoming a regular part of the university would tend to assure its keeping abreast of the latest technical and professional developments in the field, and may facilitate its receiving aid or funding from external donors.

The third, and one of the least desirable alternatives in the author's opinion, is to make the SBU an integral part of the BCNN operations. Even if the corporation's management were

to favor such an acquisition, it would quite likely necessitate changing the basic characteristics of the unit's service and make more difficult the smooth integration of broadcast programs into the school curriculum.

The last and least desirable alternative would be to dissolve the SBU, which would suddenly destroy a valuable service which has been created at great cost and which holds promise of solving some of the tremendous problems of education which the six northern states face immediately and in the foreseeable future.

VI. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

"...It must be realized that we are in a hurry. We cannot just think, and debate endlessly the pros and cons of any decision. We have to act; we have to tackle these problems now."

-- JULIUS K. NYERERE
(Inauguration of the University of East Africa, 1964)

From the evidence gathered and analyzed during this study, the following conclusions can be drawn:

- The Schools Broadcasting Unit of the Ministry of Education has gradually acquired equipment, staff, and school support and in 1967 was transmitting 6 short telecasts and 8 short radio programs each week, although there was a sparsity of evidence on (2) evaluation of programs and (b) extensive utilization of programs by schools within the signal areas. (Part II).
- Any further microcosmic cost-benefit studies of the Schools Broadcasting Unit will substantiate the very high unit costs found in a 1965 analysis, and will, therefore, fail to justify the continued use of educational radio and television in the six northern states as broadcasts are presently operated and under existing technical designs. (Part III).
- A macrocosmic cost-benefit analysis has revealed that:
 - (1) As an experiment in education by the Northern Government of Nigeria, the Schools Broadcasting Unit has been a success. It has shown that in the Northern area the new media are technically feasible, professionally promising, and fraught with difficult problems of logistics and support. (Part IV).
 - (2) As a service by the Northern Government and other aid donors, the Schools Broadcasting Unit's impact on lifting the educational level of the masses of people in the area has been negligible. (Part IV.)
 - (3) As a pilot study in an international setting, the Schools Broadcasting Unit in the Northern States has been very successful. (Part IV).

- Recognizing the scheduled governmental and institutional changes that are to take place in the very near future, the recommendations emerging from this study are:
- Prompt action should be taken to (1) conserve transmitting and receiving equipment, and (2) retain members of the Schools Broadcasting Unit as a functioning team. (Part V).
- The Schools Broadcasting Unit should (1) be shifted so as to be under the auspices of the Federal Ministry of Education, or (2) be transferred into the Institute of Education of Ahmadu Bello University. Both moves should assure the unit's continued operation.
- The Schools Broadcasting Unit may now be seen as having passed through the experimental and developmental stages. After careful planning and feasibility studies are completed, its transmitting should be redesigned so as to produce top quality programs with high utilization for a very low unit cost. (Part V).

APPENDIX A

ROSTER OF PERSONS AND ORGANIZATIONS VISITED IN CONNECTION WITH THIS STUDY

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While suggestions and insights were gratefully accepted from many persons with intimate knowledge and long experience related to the study, the author assumes complete responsibility for the information presented herein and for the conclusions and recommendations made.

J. N. E.

Kaduna, October, 1967

ROSTER OF PERSONS

Eugene Mittel, Coordinator
MATE Project/USAID
Washington County Schools
Hagerstown, Maryland

William Brish, Superintendent
Washington County Schools
Hagerstown, Maryland

Mary Ann Cusack, Director
Instructional Media
USAID, Washington, D. C.

Robert Hewsman, Program Director
(USAID/Nigeria)
USAID, Washington, D. C.

Phoebe Lansdale, Director
Programs and Media
USAID, Washington, D. C.

Cliff Block, Director
Research and Evaluation
USAID, Washington, D. C.

Sam Fuhr, Chief
Education Division
USAID, Lagos, Nigeria

C. Paul Barnhart, Chief of Party
USAID/MATE Project
Lagos, Nigeria

Griffith J. Davis, Communications
Media Specialist
Education Division
USAID, Lagos, Nigeria

Edmund Ford, Coordinator for Planning
Bureau for Africa
USAID, Washington, D. C.

Blair MacKenzie, Assistant Chief of Party
USAID/MATE Project
Lagos, Nigeria

Michael Adler, Acting Director
USAID Mission to Nigeria
Lagos, Nigeria

William A. Rex, Asst. Director (Area)
USAID, Kaduna, Nigeria

Virgil Walker, Area Education Advisor
USAID, Kaduna, Nigeria

Sam Hicks, Director
Institute of Education
Ahmadu Bello University
Zaria, Nigeria

W. J. Miller, Professor
Institute of Administration
Ahmadu Bello University
Zaria, Nigeria

Peter Callas, Specialist in Radio/Tv Education
USAID/WCM, MATE Project
Kaduna, Nigeria

R. Thomas Kincaid, Jr., Specialist in
Radio/TV Education
USAID/WCM, MATE Project
Kaduna, Nigeria

Robert Preszler, Graphics Specialist
USAID/WCM, MATE Project
Kaduna, Nigeria

Headmaster
St. Ann's Primary School
Kaduna, Nigeria

Ignatius Durlong, Permanent Secretary
Ministry of Education
Kaduna, Nigeria

J. O. Mejabi, Chief Inspector of Education
Ministry of Education
Kaduna, Nigeria

Mallam Haruna Soba, Chief Education
Officer (Teacher Training)
Ministry of Education
Kaduna, Nigeria

John Freeman, Planning and Development Officer
Ministry of Education
Kaduna, Nigeria

Mallam Hamidu Erubu, Finance Officer
Ministry of Education
Kaduna, Nigeria

G. B. Spary, Planning Officer (UKTA)
Ministry of Education
Kaduna, Nigeria

Raphael Ibitomi, Statistical Officer
Ministry of Education
Kaduna, Nigeria

Alhaji Jimada Pategi, Chief Adult Education Officer
Ministry of Education
Kaduna, Nigeria

Mallam Jibir H. Dukku, Acting Head
School Broadcasts
Ministry of Education
Kaduna, Nigeria

Mallam Bala Ibn Garba, Asst. Education Officer
School Broadcasts
Ministry of Education
Kaduna, Nigeria

J. B. Firth, Principal Accountant
Ministry of Education
Kaduna, Nigeria

Terry Snowden, Consultant
USAID/Wisconsin Project
Kaduna, Nigeria

Alhaji Abubaker Gumi, The Grand Kadi
Sheria Court of Appeals
Kaduna, Nigeria

J. R. Riley, Asst. Director
Broadcasting Corporation of Northern Nigeria
Kaduna, Nigeria

Ivan Eikenbery, Education Secretary
Northern Education Advisory Council
Kaduna, Nigeria

Alhaji Hussaini Adamu, Inspector
(Arabic Studies)
Ministry of Education
Kaduna, Nigeria

APPENDIX B

ESTIMATES OF THE ECONOMICS OF EDUCATIONAL TV
IN THE SIX NORTHERN STATES OF NIGERIA, 1966

(Compiled by R. Thomas Kincaid, Jr.,
USAID/Hagerstown Technician)

Table B1. Estimates of the Economics of Educational TV
in the Six Northern States of Nigeria, 1966

Table 1 - Costs per Television Student Hour (SH in 1966 under different assumptions)

	Total SH Generated (Per Year)	Current Costs £	Cost Per SH £ s d (\$)	Cost of Additional (Marginal) SH Generated £ s d (\$)
1. Situation at End 1966 (75 sets) (1)				
(a) All Programmes	42,730	(54,955)	1.5.11 (3.60)	
(b) Two TTC Programmes				
i. All viewers	5,030		3.16.-d (10.64)	
ii. TTC viewers only	2,250		8.13.-d (24.20)	
(c) Primary School Programmes (all viewers)	37,700		18.9d (2.60)	
2. <u>Redeployment of 1966 Sets (and of Programmes) entirely to Primary Schools (75 sets)</u> (2)	107,000	(55,741)	10.4d (1.47)	3d (.03) ⁽³⁾
3. <u>Max. Possible Primary School Coverage (500 Schools)</u> (4)	723,000	(80,841)	2.3d (.30)	10d (.11) ⁽⁵⁾
4. <u>IIEP Estimates</u> (6)				
(a) Redeploymnet of sets in Primary Schools (65 sets)	225,000	(57,500)	4.11 (.68)	
(b) Max. possible Primary School Coverage (500 sch.)	1,730,000	(83,200)	1.-d (.13)	5d (.05) ⁽⁷⁾

(1) In 1 (Situation at end of 1966) the viewing figures revealed by the SBU survey in Term 3 are taken as typical for the year. The cost figures are based on estimates made by the IIEP team in late 1965. Known changes since 1965 have been written in but given the difficulty of costing the change from 2-day to 3-day a week broadcasting, the figures are almost certainly an understatement.

(2) In 2 all seven programmes are directed to primary schools. The 38 sets in non-primary schools are redeployed in 38 primary schools, which have to be electrified for this purpose. TV utilization rates and programme audiences are assumed to be of the same magnitude in the new primary schools as in the old.

Footnotes Pertaining to Table B1 continued -

- (3) Compared with 1 (a)
- (4) Taken to be all primary schools in Kano and Zaria Provinces and in Kaduna Capital Territory. The utilization rates and programme audiences found in primary schools by the SBU survey are extended to the whole 500 schools. A reception investment of £210,000 is required.
- (5) Compared to 2
- (6) Estimates based on 4 programmes each with 1 repeat (79 1/4 hours of broadcasting per year, as against present rate of 97 1/2 hours). Assumed that every receiver utilized and that each broadcast seen by 50 pupils.
- (7) Compared to 4 (a)

Table B2. Comparison of Costs of TV and Some Other Educational Activities

	Cost Per Student Hour £ s d (\$)	Cost Per Student Per Year £ s d (\$)
1. Primary Schools		
(a) Cost of 5 Primary School TV Programmes (All Viewers) (see Table 1, 1(c))	£18.9d (\$2.62)	£24.7.6d (\$68.88) ⁽¹⁾
(b) Average teacher costs in Primary Schools	1 1/4d ⁽²⁾ (\$.015)	£6 (\$16.80)
(c) Cost of additional SH generated if increase TV sets from 75 to 500, all in Primary Schools (see Table 1 (3))	10d (\$.012)	£1.1.8d (\$3.03) ⁽¹⁾
(d) Cost of upgrading Grade III ⁽³⁾ Teachers to Grade II (3-year full-time course)	1d ⁽²⁾ (\$.01)	£4.16.-d (\$13.44)
(e) Average current expenditure on books for primary students		3.6d (\$.49)
2. Teacher Training Colleges		
(a) Cost of 2 TTC TV programmes per TTC Student (see Table 1, 1(b) ii)	£8.13.-d (\$24.22)	£224.18.-d ⁽¹⁾ (\$629.72)
(b) Average teacher costs in TTC's	1.-d ⁽²⁾ (\$.14)	£60 (\$168)

Comments: (1) The TV costs per student per year are calculated on the assumption that each student views TV for one hour per week per year.

(2) Teacher costs per student hour are given in order to provide some yardstick with which to compare TV costs. It is not suggested that an hour of TV lessons exactly equals an hour of normal teaching.

Comments Pertaining to Table B2 continued -

- (3) Calculated by depreciating the human investment (recurrent costs and capital use) represented by 3 years at a TTC, over 10 years and adding the yearly sum for depreciation to the difference in salary between a Grade II teacher and a Grade III teacher.

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World-Wide Education and Research Institute
(a Non-Profit Corporation)

Regional Offices:

Charles Armstrong
74 Jordan Boulevard
Delmar, New York 12054

Norman F. Hyatt
574 East 2nd South Street
Salt Lake City, Utah 84102

Jefferson N. Eastmond, President
1279 - 31st Avenue
San Mateo, California