

A FEASIBILITY STUDY TO PROVIDE A COMPREHENSIVE PROGRAM  
OF NEWER EDUCATIONAL COMMUNICATIONS MEDIA FOR THE  
EDUCATIONAL SYSTEM OF BRITISH GUIANA

Archives  
Closed  
LD  
175  
.A40k  
Th  
138

---

A Thesis  
Presented to  
the Faculty of the Department of Education  
Appalachian State Teachers College

---

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

---

by  
Hilton Walter Gopie  
May 1963

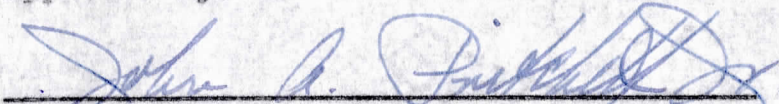
A FEASIBILITY STUDY TO PROVIDE A COMPREHENSIVE PROGRAM  
OF NEWER EDUCATIONAL COMMUNICATIONS MEDIA FOR THE  
EDUCATIONAL SYSTEM OF BRITISH GUIANA


---

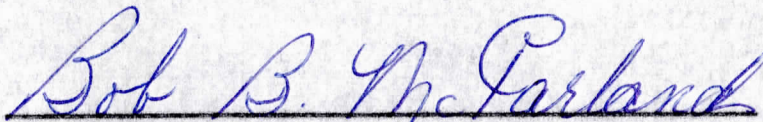
by


Hilton Walter Gopie

Approved by:

  
Chairman of Thesis Advisory Committee

  
Director of Graduate Studies

  
Member of Thesis Advisory Committee

  
Member of Thesis Advisory Committee

A FEASIBILITY STUDY TO PROVIDE A COMPREHENSIVE PROGRAM  
OF NEWER EDUCATIONAL COMMUNICATIONS MEDIA FOR THE  
EDUCATIONAL SYSTEM OF BRITISH GUIANA

---

An Abstract of a Thesis  
Presented to  
the Faculty of the Department of Education  
Appalachian State Teachers College

---

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

---

by  
Hilton Walter Gopie  
May 1963

---

## ABSTRACT

The Problem. The purpose of this study is (1) to point out the educational values of communications media with special emphasis on the newer media; (2) to trace their growth and development in selected countries and to determine to what extent they are being used in these countries and for what specific purposes; and (3) to study different programs in the United States of America with the idea of proposing a similar program for British Guiana.

The Procedure. (1) Several types of literature dealing with different aspects of the problem were reviewed; (2) actual contact with different types of materials and equipment at Appalachian State Teachers College Audio-Visual Center enabled the author to visualize and evaluate their educational values; and (3) regular conferences with the Director of the Audio-Visual Center at Appalachian State Teachers College assisted the author to understand better the field of newer educational communications media and also to plan the proposed program for British Guiana.

The Conclusions. (1) That newer educational communications media have made substantial contributions to education in helping to solve some of the existing educational problems; (2) that British Guiana should adopt a

program of newer educational communications media in trying to solve some of its educational problems; and (3) that the program for British Guiana be focused primarily on the introduction and utilization of television in the education system with other types of media introduced later on.

## TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND DEFINITIONS OF TERMS USED .....	1
The Problem .....	2
Statement of the problem .....	2
Significance of the problem .....	2
Purposes of the study .....	3
Assumptions and limitations of the study ....	3
Definitions of Terms Used .....	4
Newer educational communications media .....	4
Organization of Remainder of the Thesis .....	5
II. BACKGROUND INFORMATION ON BRITISH GUIANA .....	6
History .....	6
Geography .....	7
Economy and Development .....	7
People .....	8
Government .....	9
Education .....	9
Structure of education .....	11
Teacher education .....	13
Adult education .....	14
Administration .....	14
School broadcast .....	15
Problems in education .....	16
III. REVIEW OF THE LITERATURE .....	18

## CHAPTER

## PAGE

Audio-Visual Materials and their Values	
as Teaching Tools .....	18
History of audio-visual education .....	18
General education values .....	22
Trends in Newer Educational Communications	
Media in Selected Countries .....	26
India .....	27
England .....	28
Japan .....	30
United States of America .....	32
Unesco .....	35
IV. NEWER EDUCATIONAL COMMUNICATIONS MEDIA .....	39
Media for Mass Communication .....	39
Radio .....	39
Motion pictures .....	43
Television .....	45
Media for Classroom Groups .....	52
Tape recorders and record players .....	52
Opaque projector .....	53
Overhead projector .....	54
Slides and Slide projector .....	56
Filmstrips and filmstrip projector .....	57
The tachistoscope and controlled reader ....	58
Motion pictures .....	58
Radio .....	59

CHAPTER

PAGE

Television .....	60
Media for Individual learning .....	63
Tape recorders and language laboratories ....	63
Teaching machines .....	64
V. RECOMMENDATIONS FOR IMPLEMENTING NEWER EDUCATIONAL COMMUNICATIONS MEDIA CENTRAL SERVICES IN BRITISH GUIANA .....	68
Characteristics of a Desirable Educational Communications Media Program .....	68
Location of the Central Educational Communications Media Center .....	70
Organization .....	71
Administration .....	72
Finance .....	72
Staff and Services .....	75
Selection and Purchase of Materials and Equipment .....	78
Cataloging, Storage, and Distribution of Materials .....	78
Production of Materials Locally .....	79
Training of Personnel .....	79
Pre-service and In-service Education for Teachers .....	80



CHAPTER	PAGE
The Proposed Program of Dissemination	
Utilizing Television .....	83
Cost factor .....	85
Building facilities .....	86
Distribution system .....	86
VI. SUMMARY AND CONCLUSIONS .....	88
Summary .....	88
Conclusions .....	90
BIBLIOGRAPHY .....	93
APPENDIX .....	101
Map of British Guiana .....	102

## CHAPTER I

### THE PROBLEM AND DEFINITIONS OF TERMS USED

Audio-Visual materials have been used successfully in many countries to combat illiteracy and meet other educational problems such as large classes and inadequately qualified teachers. They have been used to enrich the curriculum since they can make subject matter vividly interesting and exciting. They help the student acquire better understandings, provide him with vicarious experiences, and motivate him in the learning process. They provide the student with many learning opportunities through which he can see, examine, hear, and participate in classroom activities. These materials play an important part in teaching, particularly since verbal descriptions do not always clarify the thing described, and often a lack of background experiences of the student prevents full comprehension. The effectiveness of these materials is supported by the fact that they are used widely throughout the world. These materials and equipment range in traditional use and familiarity from the chalk board and bulletin board to the more complicated projection machines and the seemingly miraculous television.

In many countries where school construction lags while the birth-rate increases, there exists a shortage

of teachers and classrooms. Educators in most of these countries in trying to cope with these problems have been turning more and more to newer educational communications media for the answer. British Guiana, with similar educational problems, could do well to adopt a similar program with newer educational communications media.

### I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to point out the educational values of communications media with special emphasis on the newer media; (2) to trace their growth and development in selected countries and to determine to what extent they were being used in these countries and for what specific purposes; and (3) to study different programs in the United States of America with the idea of proposing a similar program for British Guiana.

Significance of the problem. The problem was significant to the author because of the educational problems that exist in his country and his desire to do something about them. Overcrowded classrooms and ill-prepared teachers result in inferior quality of education for the population. A poorly educated public is a handicap to social development and also a hindrance to the proper functioning of government and other organizations. Presently

about twenty per cent of the population is illiterate.

Purposes of the study. The author, in trying to find solutions to the educational problems and limitations of educational facilities in his country, decided (1) to propose an Audio-Visual communications program with newer educational media; (2) to introduce the idea of newer educational media into British Guiana; and (3) to give educators and the government of British Guiana ideas to consider and possibly to use as a guide.

Assumptions and limitations of the study. The author is assuming (1) that newer educational communications media, if used on an expanded scale in British Guiana, will solve some of the country's existing educational problems and thereby result in more and better education for its citizens; (2) that foreign aids, both technical and financial, could be obtained for implementing such a program; and (3) that local help and cooperation would be forthcoming.

The problem was limited mainly to public education in British Guiana as supplied by primary schools and to teachers serving these schools. However, secondary and adult education were considered in the proposed program. The problem has dealt mostly with newer educational communications media --projected materials and equipment, sound recordings and equipment, and radio and television. The proposed program

includes planning, organization and administration; finance, staffing and services; selection and purchase of materials and equipment; storage and distribution of materials; production of materials locally; special training for personnel; and pre-service and in-service training of teachers. As far as practicable the proposed program is organized along lines similar to those found in the United States of America with modifications to suit local conditions in British Guiana.

## II. DEFINITIONS OF TERMS USED

Newer educational communications media. As newer developments in technology have been applied to the problems of education, the term "Audio-Visual aids or materials" has become less useful to describe the field with accuracy. The term newer educational communications media as used in this study refers to newer types of materials and equipment of educational communications that have been designed to improve teaching. These materials and equipment include television, motion pictures, radio, kinescope, videotape and sound recordings, slide and filmstrip projection, overhead, opaque and microprojection, teaching machines, and language laboratories.

### III. ORGANIZATION OF THE REMAINDER OF THE THESIS

The second chapter dealt with background information on British Guiana with the idea of giving an insight into the country. The third chapter reviewed literature to show the growth and development of newer educational communications media in selected countries and also to point out their educational values. The fourth chapter dealt with newer educational communications media as used for mass communication, classroom groups, and also for individual learning. The fifth chapter covered the different aspects of the proposed program for British Guiana. The final chapter presented the summary and conclusions.

## CHAPTER II

### BACKGROUND INFORMATION ON BRITISH GUIANA

History. The Guiana (British, Dutch, French) coast, though probably sighted by the Spanish and Portuguese expeditions to South America, was not explored by either of these powers. Since they did not settle in this part of South America, their culture, traditions, and influence are absent. Thus, the Guianas bore no resemblance to the rest of South America in this respect.

The Dutch<sup>1</sup> were the first people to successfully explore this part of South America and establish colonies at Essequibo, Demerara, and Berbice (now united to form British Guiana) during the early sixteenth century. Many British attempts during the first half of the sixteenth century to explore and establish a settlement on this Guiana block met with failure. The first relatively permanent British settlement was established around 1663 in Surinam (now Dutch Guiana). This was lost to the Dutch in the war of 1665-1667 and ceded to them in exchange for Dutch New Amsterdam (now New York). The colonies changed hands several times during the succeeding years to Dutch, French, and British until finally in the peace settlement of 1814-15 the colonies of Essequibo,

---

<sup>1</sup>"Guiana," Encyclopaedia Britannica (28th ed.), X,956.

Demerara, and Berbice passed by purchase to Great Britain and the Dutch were left with only Surinam on the mainland of South America. In 1831, Demerara, Essequibo, and Berbice united into the colony of British Guiana.<sup>2</sup>

Geography. British Guiana, occupying an area of 89,000 square miles, is a part of the mainland of South America and is situated between one degree and eight degrees north of the equator. It is bounded on the west by Venezuela and Brazil, on the south by Brazil, on the east by Dutch Guiana, and on the north by the Atlantic Ocean.

Along the coast is a belt of land varying in width from ten to sixty miles which forms the agricultural area and along which the bulk of the population is found. The rest of the country is unoccupied except for scattered settlements along the banks of the rivers and a few mining areas in the interior.

The rainfall averages about ninety inches a year falling in two wet seasons, from April to July and in January. The temperature ranges between 70° and 95°F along the coast, which is kept somewhat cool by the Trade Winds from the Atlantic Ocean.

Economy and Development. British Guiana's economy

---

<sup>2</sup>"British Guiana," Encyclopaedia Britannica (28th ed.), X, 957.



depends largely on the production and processing of rice, sugar, coconuts, bauxite, diamond, gold and timber.

Besides money apportioned from local revenue for development projects, British Guiana receives grants<sup>3</sup> from the United Kingdom Colonial Development and Welfare funds. The United States International Cooperation Administration (now Agency for International Development) is contributing<sup>4</sup> to development by providing experts in such fields as housing, community development, geology, agriculture, land settlement, drainage and irrigation, and road construction. Aids have also been received from the United Nations.

People. British Guiana's population of a little over half a million is polyglot in nature. The majority are of Asiatic origin whose ancestors came from India as indentured laborers. They comprise about 48.5 per cent of the total population. Next in line are the negroes of African descent whose ancestors were brought into the colony as slaves. They total about 34 per cent. People of mixed descent claim about 11 per cent of the total population. Then there are the Portuguese, comprising about 1.5 per cent. Their ancestors came from the Azores and Madeira. The Amerindians (Aboriginal

---

<sup>3</sup>Fact Sheets on the U. K. Dependencies--British Guiana. (New York: British Information Services, 1961), p. 3.

<sup>4</sup>Ibid.

Indians) total about 4 per cent, those of European descent, mostly British, about 1 per cent, and those of Chinese descent about 0.6 per cent.

Government. British Guiana, a British crown colony, is headed by a Governor sent from Great Britain. The Legislative Assembly and Executive Council form the ruling body. Election is held every four years for members for the Legislative Assembly and the different constituencies are contested by members from the three major political parties. The party that wins the majority of seats is invited by the Governor to form the government with the others forming the opposition. The leader of the victorious party is appointed as Premier. British Guiana gained internal self-government with the last election in August, 1961, and is on the road to complete independence. Great Britain still manages the external affairs of the colony.

Education. The historical development of education in British Guiana is credited largely to different Christian denominations. By 1841, a hundred and one schools had been established largely by the Church of England and the London Missionary Society.<sup>5</sup> Other Christian denominations have also

---

<sup>5</sup>World Survey of Education II. (Paris: Unesco, 1958), p. 1175.

demonstrated a keen interest in education and have organized schools which they have financed to a great extent. These schools were opened to the public and accept any child who seeks admission regardless of race, color, or creed. They received grants from government, which by 1927, had shouldered the greater part of the financial burden for public education. Statistics<sup>6</sup> for 1960 show that there were 326 primary schools with an enrollment of 125,348 and an estimated teaching staff of about 3,171. Secondary education is provided in two government-owned secondary schools, thirteen government-aided secondary schools, and about twenty privately maintained secondary schools. The total enrollment for these in 1960 was 9,086. Vocational education is provided by the Government Technical Institute, the Carnegie School of Home Economics, and by two private trade schools, one of which is owned and operated by Bookers Sugar Estates and the other by Demerara Bauxite Company. Teacher education is offered at Government Training College. Since there are no facilities for higher education, the more successful and ambitious students generally attend the University of the West Indies at Jamaica, or go to colleges or universities in Great Britain, the United States of America, and Canada. Plans are afoot presently for the opening of a liberal arts

---

<sup>6</sup>Annual Report of the Director of Education, British Guiana (Georgetown: Department of Education, 1960), pp. 1-5.

college in the fall of 1963 in British Guiana. Only a small percentage of students are able to go abroad to study. Figures for 1960 indicated an estimated 1,200.

Structure of Education. Primary or elementary education, which is the only type of free public education, caters for the six to fourteen age group and covers eight grades. This type of education is provided by the primary schools, which are divided into three categories: government schools, government-aided schools, and un-aided private schools. Most of the government-aided schools are owned by the various religious denominations, to which the government makes annual grants for the provision of equipment, maintenance of buildings, and the payment of teachers' salaries. There are also some non-denominational schools which qualify for similar grants. These are usually located on sugar estates and in mining settlements. Government schools are owned and operated by the government. They are entirely under the control of the Education Department as opposed to those owned by the different religious denominations, which are partly controlled by these denominations and partly by government. All government and government-aided schools are supervised by the Education Officers of the Education Department, who visit the schools from time to time. Private schools are maintained by private individuals or organizations and do not come under the

supervision of the government.<sup>7</sup>

Primary, or elementary, education on the one hand and secondary education on the other have historically been regarded as two different and unrelated types and systems of education. Secondary education is provided by government-owned schools, government-aided schools, and privately run secondary schools. Since secondary education is not free, students are charged tuition fees. There are a few government and private scholarships available for attending secondary schools.

Students do not progress straight on from the primary to the secondary or high schools. Secondary education has been and still is regarded as academic education. Previously, pupils were selected for it after completing primary school or after having had about six years of primary schooling and upon passing an entrance examination administered by the principal of the school of the pupil's choice. Presently, pupils are selected after about six years of primary schooling and upon passing the Common Entrance Examination administered throughout the colony by the Education Department. Those not selected continue their general education in the primary schools.

Secondary schools function as preparatory schools

---

<sup>7</sup>World Survey of Education III. (New York: International Documents Service, Columbia University Press, 1961), p. 1310.

preparing pupils for the General Certificate of Education (Ordinary Level) administered by the University of London through the local Education Department. Oxford and Cambridge Universities conduct similar examinations. The subjects taught in the secondary schools are selected from those covered by these universities examinations. The number of subjects taught by the different schools vary from about eight to twelve. The amount taught for each subject is determined by the respective university. Students study subjects for a minimum of four years in secondary schools, after which time they take the General Certificate of Education Examination (Ordinary Level). Those who pass this examination in a certain number of subjects at any one sitting are qualified for certain civil service and teaching jobs. Those who fail may continue to take it until qualified or dropped off altogether. Some secondary schools also prepare students for entrance to British universities. Students become qualified by passing an additional two or three subjects at the General Certificate of Education (Advanced Level). This examination is taken after two years of training beyond the General Certificate of Education (Ordinary Level).

Teacher Education. The bulk of the teachers for primary schools are recruited from those who pass the General Certificate of Education (Ordinary Level). Professional

training for these teachers is given at the Government Training College but only after a minimum period of a year or two of teaching service. Thus, teachers enter the teaching profession at the beginning without any professional training. Government Training College, the only such institution in the colony, accepts only about one hundred and fifty students at a time. This college is financed by the government. Its two-year training program was converted indefinitely into a one-year emergency program beginning in 1959.

Adult Education. Adult Education is not organized nor supervised by the Education Department, but valuable work is being done in this field by the Extra-Mural Department of the University of the West Indies, the British Council, and the British Guiana Adult Education Association.

Administration. A centralized system of administration exists with the Director of Education, who heads the Department of Education situated in the capital of the colony, responsible for the administration and supervision of education and for the training and certification of teachers. He is assisted by some seventeen senior officers of the Department and is advised by the Education Committee, a statutory body reconstituted in February, 1957; with fifteen members.<sup>8</sup> The Minister of Education exercises responsibility

---

<sup>8</sup>Ibid.

for matters affecting education, including the initiation of policy, securing the endorsement of the policy, and ensuring that the policy adopted is duly carried into effect. This is a political post.

School Broadcast. Radio broadcast to schools is the only form of newer educational communications media used so far. It was introduced in 1953 with a commercial radio station broadcasting for half an hour a day Monday through Friday. Schools raised their own money for the purchase of receiving sets. In 1960, an estimated 193 primary and secondary schools were equipped with receiving sets.<sup>9</sup> Besides local presentation, series for broadcast were obtained from the British Broadcasting Corporation Colonial Schools Unit.

In March, 1960, the Broadcasts to Schools Unit in British Guiana distributed its first edition of a magazine booklet called The Young Listener. During 1960 and 1961 the Education Department in collaboration with the Broadcasts to School Unit held several seminars with teachers to study techniques used in the production and presentation of Broadcasts to Schools, and to indicate the limitation of the service and enlarge the scope of teacher-participation. Government Training College has also incorporated certain

---

<sup>9</sup>Annual Report of the Director of Education, British Guiana, op. cit., p. 5.



aspects of radio broadcasts to schools in its regular training program.

Problems in Education. (a) Because of a grave shortage of teachers, a teacher handles about forty-five pupils in his class. (b) The increase in the school population has resulted in severe overcrowding. In 1960, twenty-two per cent of the total population was in primary schools. The government reported in 1957 an increase in primary school enrollment of about 6,000 pupils per year.<sup>10</sup> In 1960 it reached 6,990 but at the same time only an additional 690 places were provided by the school building program.<sup>11</sup> Because of overcrowding it was reported in 1957 that ten per cent of the children of school age were not enrolled in a primary school.<sup>12</sup> There has not been any significant change since then because of the rapid increase in the birth rate. (c) The majority of the teachers have received no professional training for the job. Thus, there is a shortage of qualified teachers. In 1960 only twenty per cent of the teachers had received any

---

<sup>10</sup> Charles C. Hauch, Educational Trends in the Caribbean (Washington: U. S. Dept. of Health, Education and Welfare, 1960), p. 32.

<sup>11</sup> Annual Report of the Director of Education, British Guiana, op. cit., pp. 1-2.

<sup>12</sup> Hauch, loc. cit.

professional training.<sup>13</sup> (d) There is a great need for library facilities. Primary schools have inadequate materials and facilities to meet the needs and interests of the pupils. There is no government public library in rural areas in spite of the fact that the majority of the population is rural and the greater number of primary schools is in rural areas. (e) Communication is a serious problem. English is the official language and instructions in schools are given in this language. However, for the ancestors of the present population English was a foreign tongue except for the handful of people of British descent. Thus, the English language was so badly mutilated by these people that the scars still remain in the speech of the present generation; therefore, a colloquial language prevails throughout the colony. Hence, only those with adequate education can express themselves properly, for mastering of correct English is rather difficult to achieve in rural areas. Many of the teachers are products of such a background. Students from the rural areas especially come from homes and communities where the colloquial language prevails. (f) Neither pupils nor teachers travel much around the colony. Pupils from rural areas sometimes spend all their school days in their community without venturing to other areas. Thus, they lack experience and imagination.

---

<sup>13</sup>Annual Report of the Director of Education, British Guiana, loc. cit.

## CHAPTER III

### REVIEW OF THE LITERATURE

Research in Audio-Visual materials began in earnest in the nineteen-twenties in the United States of America and many European countries. In the United States of America alone some 762 doctoral dissertations<sup>1</sup> had been completed in this area by 1960. A series of experiments have also been carried out to determine the educational values of different Audio-Visual materials and many of these have since been used extensively in the schools of several countries.

#### AUDIO-VISUAL MATERIALS AND THEIR VALUES AS TEACHING TOOLS

History of Audio-Visual Education. The use of Audio-Visual instruction may be traced back through the educational history of the human race. Primitive boys were taught to hunt and fish, and girls to cook, through demonstration, observation, and participation. The early records of cave men were picture records which became written symbols.<sup>2</sup>

The Greeks, in the days of Socrates, utilized the

---

<sup>1</sup>John Moldstad, "Doctoral Dissertations in Audio-Visual Education," Audio-Visual Communication Review, 4:291-333, Fall, 1956; 6:33-48, Winter, 1958; 9:220-229, July, 1961.

<sup>2</sup>Charlotte B. Polishuk, "Audio-Visual Aids and How They Grew," The Grade Teacher, 70:50, February, 1953.

school journey, sand as blackboards, and realia as instructional techniques.<sup>3</sup>

The Dutch scholar Erasmus<sup>4</sup> combated verbalism in teaching by advocating certain "new" ideas. "Children should be acquainted with familiar objects and animals through informal methods--stories, pictures, games, and object teaching--rather than mere memorizing."<sup>5</sup> Such men as Comenius, Rousseau, and Pestalozzi criticized the teaching methods in the schools of their times and emphasized visual education. Comenius prepared one of the first "visualized" textbooks in existence. He called it Orbis Sensualium Pictus (the world of sense objects). Some 150 pictures make up the book, each providing the topic for a lesson.

Rousseau in publishing Emile tried to show how the natural man may be developed by education. "Make your child attentive to natural phenomena and you will soon make him curious."<sup>6</sup> The teaching process was to consist chiefly in giving rational direction to the learner's natural curiosity.

---

<sup>3</sup>Ibid.

<sup>4</sup>Edgar Dale, Audio-Visual Methods in Teaching (New York: Holt, Rinehart and Winston, 1961), p. 58.

<sup>5</sup>Ibid.

<sup>6</sup>Ibid., p. 60.

Pestalozzi,<sup>7</sup> in trying to use education to better the miserable lot of peasants in his native Switzerland, was aware that the formal methods of his time did not teach effectively. He became interested in basing instruction on sense perception (sometimes called the "object method"). This is illustrated in his novel Leonard and Gertrude.

The first corroborated account<sup>8</sup> of the recording of sound was achieved by the Egyptians some 1,500 years before the beginning of the Christian era. Maps and globes in crude form were known when the red men were receiving their first European visitors in America. Photographs and study prints have been in educational use since the days of the Dame Schools.

Various other audio and visual materials used in schools are of more recent development. These include radio, sound recordings, projectors, sound film, slides, and the infant giant--television.

The great majority of the leading cities in the United States of America have well-equipped and functioning instructional materials centers. Besides the States' Audio-Visual Department, many universities provide similar services. Augmenting this service, the numerous national and local

---

<sup>7</sup> Ibid.

<sup>8</sup> Polishuk, loc. cit.

museums are ready to lend materials to schools.

Developments in the United States are paralleled in other countries.<sup>9</sup> The Canadian Government's National Film Board produces educational motion pictures and slides for distribution throughout the country. The British Museum offers its facilities to the schools of England. Also the Educational Foundation for Visual Aids in England lends films and other materials to schools. The excellent collections of paintings, photographs, slides and motion pictures in Berlin, Leipzig, Munich, and other German cities are used extensively among schools of all types. The Institute for Film and Picture in Knowledge and Instruction, located in Munich, produces films, filmstrips, and sound tracks for use in schools. France has converted a military barracks into a production studio for the preparation of suitable educational films. On a national scale two closely connected bodies formed the core of the central organization for Audio-Visual aids in French education. These bodies produce and distribute materials to the schools. The Belgian Museum produces and distributes educational motion pictures. Russia has used all types of visual-sensory aids to combat the appalling illiteracy which existed at the time of the Revolution. School films are being produced by the various filming studios on

---

<sup>9</sup>Ellsworth C. Dent, The Audio-Visual Handbook (Chicago: The Society for Visual Education, 1950), pp. 7-8.

the orders of the Ministries of Education. The collection is housed and distributed by the Collection of School Films. Italy has found the poster, motion picture, slide, and other forms of illustrative materials to be of great service since the beginning of the Fascist regime. The National Centre for Audio-Visual Aids in Italy provides films for use in schools. Similar application of Audio-Visual materials to instruction is found in all parts of the world. Some cities in Europe have their own production studios and distribution services. Various organizations in New Zealand, Australia, India, China, Japan, South Africa, Brazil, Argentina, Chile, and Mexico are giving active attention to the production and use of motion pictures and other Audio-Visual materials for use in schools.

General education values. Children who have been reared on farms and in rural areas are unfamiliar with certain matters that are commonplace to urban children and vice versa. Children from low socio-economic background do not have much opportunity for traveling, going on trips, seeing places of interest, going to cinemas, and, consequently, lack broad imagination and experience. The geographical residence of the pupil and the time in which he lives present limitations to him as a learner. A pupil probably never visited Europe or Asia or Africa to experience them at first hand, or he may never have experienced the World Wars, but he can do so in his classroom vicariously through newer educational

communications media. Most teachers and students cannot travel to India, but they learn about India through films. We learn about past events from films that have recreated them. We cannot see the entire globe at one time, but we can all see a small model of it in our classroom and learn the meaning of latitude, longitude, equator and hemispheres. We cannot look directly at an atom, but a model presents it in a memorable reconstruction. Thus, Audio-Visual materials<sup>10</sup> can bring the world to the classroom, the past can be made to come alive, and the present can be a rich experience instead of a meager one. The farm boy can be helped to understand the city boy. People distant in space--continents apart--can be helped to see how much they have in common.

Like any workman the teacher too needs his materials and tools for communicating information, providing motivation, inspiring desirable attitudes, and promoting growth. First among these is the word--spoken, written, printed, recorded, or broadcast. Then there is the picture varying from photograph to illustration to symbol, such as a map or a graph. Pictures and words sometimes combine as in illustrated textbooks and slides or filmstrips with captions. Pictures and words also combine with sound as in motion pictures and television.

---

<sup>10</sup> Dale, op. cit., pp. 6-7.



Audio-Visual materials become part of the teacher because they increase learning. The teacher does not need results of research studies to convince himself about this. Positive proofs are available in the classroom with the sudden light of comprehension on a child's face when a diagram has clarified a puzzling point or with the rapt attention of the child when watching a demonstration or a film. One reason for this is found in the psychology of learning. "Meaningful materials and meaningful tasks are learned more rapidly than nonsense materials and more readily than tasks not understood by the learner."<sup>11</sup>

Audio-Visual materials, by adding picture and sound, by bringing the faraway in time and place into the classroom, or by enlarging what is too small to see with the naked eye, make words stand for something and lend meaning to facts and concepts which are vague when conveyed only in words.<sup>12</sup>

Audio-Visual materials make learning more pleasant, and pleasure has been proved to be an incentive to learning.

An outstanding value of Audio-Visual materials is that the learning acquired through them is retained for a significantly longer period than the learning acquired by purely verbal teaching. In an experiment<sup>13</sup> in ninth-grade science

---

<sup>11</sup>Ernest Hilgard, Theories of Learning (New York: Appleton-Century-Crofts, 1956), p. 486.

<sup>12</sup>Florence Freedman and Esther King, Classroom Teachers Guide to Audio-Visual Materials (Philadelphia: Chilton Company, 1961), p. 4.

<sup>13</sup>Paul R. Wendt, Audio-Visual Instruction (Washington: National Education Association, 1957), p. 10.

the classes that used regular teaching methods with a textbook and films learned twenty per cent more facts than the control classes which used the same teaching methods and textbook but no films. The really significant fact, however, is that after six weeks the film groups retained thirty-eight per cent more information than the control classes.

In view of the estimates that students sometimes forget up to ninety per cent of what they once knew, Audio-Visual materials could be of great importance here because of the possibly greater retention of facts through instruction with such materials.

J. J. Weber, in summarizing his experiments at the University of Kansas and at Columbia University, said,

The systematic use of visual aids along with verbal instruction will enable the retarded pupil to keep up more easily because the objectively illustrated subject matter is both comprehensible and interesting; and, if the subject matter is made understandable and more interesting for him, he will not be as likely to leave school prematurely.<sup>14</sup>

Research shows that Audio-Visual materials definitely contribute to thinking and problem solving. One carefully conducted experiment<sup>15</sup> made a particular effort to determine whether children could use the facts obtained from film in reasoning and problem solving. Special test items were

---

<sup>14</sup>Dent, op. cit., p. 15.

<sup>15</sup>Wendt, op. cit., p. 14.

designed not only for a recall of facts but also for the use of facts. These facts were given by textbook only to the control classes and by the text and teaching films in the experimental classes. Tests of the use of the facts in thinking out a problem showed the film group as outstandingly better than the "text only" group.

Charles F. Hoban, James D. Finn, and Edgar Dale have found that Audio-Visual materials, when properly used in the teaching situation, can accomplish the following:<sup>16</sup>

1. They supply a concrete basis for conceptual thinking and hence reduce meaningless word-responses of students.
2. They have a high degree of interest for students.
3. They make learning more permanent.
4. They offer a reality of experience which stimulates self-activity on the part of pupils.
5. They develop a continuity of thought; this is especially true of motion pictures.
6. They contribute to growth of meaning and hence to vocabulary development.
7. They provide experiences not easily obtained through other materials and contribute to the efficiency, depth, and variety of learning.

These seven points are not just the beliefs of these three men but are supported by a vast amount of research by many investigators.

#### TRENDS IN NEWER EDUCATIONAL COMMUNICATIONS MEDIA IN SELECTED COUNTRIES

Newer educational communications media have different

---

<sup>16</sup>Dale, op. cit., p. 65.

beginnings in different countries. In certain cases they have been pushed forward by local initiative while in others foreign incentive has provided the beginning.

India. India's educators, like those of other nations, are convinced that Audio-Visual education, if given recognition, support, and leadership, can contribute to the improvement and acceleration of India's educational program. India's problem is that of educating the illiterate masses (seventy-five per cent in 1959) as well as the regular school children. Schools work on a double or treble shift.

In 1959 under India's second Five-Year Plan, the Ministry of Education, in cooperation with the United States Technical Cooperation Mission in India, established a National Institute of Audio-Visual Education.<sup>17</sup> The latest in Audio-Visual equipment, costing approximately \$200,000, were provided by the Technical Cooperation Mission.<sup>18</sup> In addition, the United States of America agreed to provide three Audio-Visual consultants for a period of two years each. In January, 1959, the project began, as planned, to bring into

---

<sup>17</sup>Homai J. Moos and E. A. Pires, "Mass Media of Communication in the Schools of India," The Year Book of Education (New York: World Book Company, 1960), p. 341.

<sup>18</sup>G. K. Athalye and Francis W. Noel, "India Takes a Giant Stride," Audiovisual Instruction, 5:104, April, 1960.

reality an idea. The Ministry of Education consolidated all of its Audio-Visual activities, placing them under the supervision of the Institute. The functions<sup>19</sup> of the Institute shall be leadership in ideas, technical information, and general know-how; teacher education, research, production, film library and distribution service, and consultation and information.

Besides the traditional visual aids, India is making progress in the field of newer educational communications media. Radio broadcasts<sup>20</sup> for schools, begun in 1929, has reached the stage where twenty-one of the twenty-seven All-India Radio Stations are taking part. The Ministry of Education sponsors classroom films every year. These are produced at its Films Division at Bombay. Educational television<sup>21</sup> programs began in September, 1959.

England. In the last twenty years<sup>22</sup> there has been a marked acceleration in the use of a wide range of Audio-Visual

---

<sup>19</sup>Ibid.

<sup>20</sup>Narendra Kumar, "The Use of Radio in Education in India," The Year Book of Education (New York: World Book Company, 1960), p. 530.

<sup>21</sup>Moos and Pires, op. cit., p. 344.

<sup>22</sup>Helen Coppen, "Symposium on Mass Media in the United Kingdom," The Year Book of Education (New York: World Book Company, 1960), p. 294.

materials in schools in England. Teachers no longer confine themselves to the blackboard and the textbook but, rather, make use of mass media--films, radio, slides, filmstrips, and museum materials.

School radio broadcasts,<sup>23</sup> which began in 1924, have continued satisfactorily. By 1945, thirty-two separate series had been broadcast to 14,000 schools. Since then the audience has more than doubled and the series increased to fifty-five. More than seventy per cent of the schools are now equipped to receive radio broadcasts.

In 1925 the Psychological Research Committee reported its findings which supported the use of films in schools. The following years were used for practical experiment and research and not until 1939 was the value of films as a teaching tool established. Nothing much was done during the war years. An important step was taken in 1946 when the local education authorities and the teachers' organizations in England and Wales established the National Committee for Visual Aids in Education.<sup>24</sup> Among other things, this advisory body gave advice and promoted effective methods for using

---

<sup>23</sup>R. C. Steele, "Symposium on Mass Media in the United Kingdom--School Broadcasting in Sound and Television," The Year Book of Education (New York: World Book Company, 1960), p. 204.

<sup>24</sup>J. A. Harrison, "Symposium on Mass Media in the United Kingdom--Films and Filmstrips," The Year Book of Education (New York: World Book Company, 1960), p. 296.

visual aids. The Ministry of Education later established the Educational Foundation for Visual Aids to be responsible for implementing the policy of the National Committee particularly for production and distribution. There has been substantial expansion<sup>25</sup> in the provision and use of films in the schools during the last few years. In 1949 only about 2,000 schools were equipped with projectors in comparison to 11,000 in 1959. In 1949 the Foundation Film Library sent out 1,300 films; by 1958-59 this had increased to 60,000. There are about 30,000 filmstrip projectors in schools and about 4,500 filmstrips are available.

Television programs to schools are provided by both the British Broadcasting Corporation and the Independent Television Network, which offer one program each per day. Though school television is developing rapidly, only about three per cent of the schools are making use of it. This is probably so because of the well established radio programs which are heard in about thirty times as many schools.

Japan. It was after the close of World War II in 1945 that emphasis was placed on the use of Audio-Visual methods in the schools in Japan.<sup>26</sup> During the period of occupation by

---

<sup>25</sup>Ibid., pp. 296-98.

<sup>26</sup>Kanji Hatano, "Mass Media and Education in Japan", The Year Book of Education (New York: World Book Company, 1960), p. 499.

the Allied Powers, the Civil Information and Education (now the United States Information Service) made available some 1,300 film projectors and films to all the forty-six prefectures of the country for the use in out-of-school education for youths and adults.<sup>27</sup> This measure later stimulated the establishment of local film libraries and the use of educational films by the groups concerned with out-of-school education. Thus, Audio-Visual education in Japan, depended greatly upon the motivation of foreign countries, more especially of the United States of America. When the Japanese sovereignty was restored in 1952, Audio-Visual education<sup>28</sup> was integrated into the whole system of Japanese education and made steady progress as years went by.

The Ministry of Education, the central agency of educational administration, has an Audio-Visual section which provides national guidance and services in the field of Audio-Visual education. Each of the forty-six prefectures has its own film library for the loan of films to schools and social education establishments. Besides, there are some 400 additional film libraries<sup>29</sup> throughout the country. There are a number of national and local research groups and

---

<sup>27</sup>Ibid.

<sup>28</sup>Ibid., p. 450.

<sup>29</sup>Ibid., p. 451.



organizations in the field of Audio-Visual education.

The use of school broadcasts was pushed forward by a group of progressive teachers who attempted to bring broader and more flexible materials into the schools. The 1958 national survey<sup>30</sup> showed about ninety-five per cent of the schools were equipped with radio receiving sets. Television broadcasting to schools started in 1953 and by 1958 fifteen thousand schools were equipped with receiving sets.

The educational use of films developed rapidly after 1920 with the importation of films and projectors from the United States of America and Germany. By 1952 the use of films was boosted by the lower cost of local production of films and projectors, and also by then local film libraries were able to purchase their own films.

United States of America. The use of Audio-Visual materials in education in the United States of America has been stimulated by their extensive use by the Armed Forces. In the mass military training programs during World War II, great dependence was placed on the use of visual aids in teaching. Films, filmstrips, slides, and recordings were used in great quantity and at the same time integrated research projects were launched to assess various aspects of

---

<sup>30</sup>Ibid., p. 457.

effectiveness.<sup>31</sup> The second push came from philanthropic foundations which have provided sufficient funds for educational institutions to carry out necessary research. Notable among these is the Ford Foundation, which has provided over \$50,000,000<sup>32</sup> for research and installation of educational television stations. The National Defense Education Act of 1958 gave still another boost to support the use of Audio-Visual materials in education. Under Title VII of the Act of 1958 an expenditure of \$18,000,000 over three and a half years was authorized for the purposes of research into new educational media and the dissemination of the results.<sup>33</sup> As of March, 1961, some 137 research projects<sup>34</sup> were in progress or completed. Titles III and IV provides aid for the use of new media to improve instruction in selected subject areas.

Besides national Audio-Visual departments, there are also state, regional, county, and city departments. Many

---

<sup>31</sup>Kideya Kumata and Malcolm S. Maclean, Jr., "Education and the Problems of the New Media in the U. S. A.," The Year Book of Education (New York: World Book Company, 1960), p. 278.

<sup>32</sup>ETV, A Ford Foundation Pictorial Report. (New York: Ford Foundation, 1961), p. 12.

<sup>33</sup>Claude V. Russell, "The Effects of Television on Textbooks," The Year Book of Education, 1960. p. 108.

<sup>34</sup>C. W. Stone, "Some New Frontiers for Newer Media," Audio-Visual Communication Review, 9:163, July, 1960.

educational institutions have established their own radio stations, television stations, and film-producing units. During 1958-1959 some 189 radio stations<sup>35</sup> in operation have been owned by educational institutions. As of October, 1961, there were sixty educational television stations on the air.<sup>36</sup> The number has presently reached about seventy-five. By July, 1960, there were 185 institutions with closed-circuit television systems.<sup>37</sup>

A survey by the United States Office of Education in 1958 showed that over 500,000 films are available for educational purposes. An estimated \$21,000,000 was spent in 1958 alone on educational films.<sup>38</sup>

Schools are making extensive use of newer educational communications media. Between 1946 and 1954 the number of sound motion-picture projectors in comparison to pupil enrollments has increased by 140 per cent and the number of radio receivers doubled.<sup>39</sup>

---

<sup>35</sup>Kenneth D. Norberg, "Growth in the Use of Mass Media in American Education," The Year Book of Education (New York: World Book Company, 1960), p. 271.

<sup>36</sup>Current Developments in Educational Television (Washington: National Educational Television and Radio Center, 1961), p. 1.

<sup>37</sup>Ibid., p. 23.

<sup>38</sup>Norberg, op. cit., p. 269.

<sup>39</sup>Ibid., p. 271.

Besides developing its own newer educational communications media program, the United States of America has shown particular interest in assisting other countries in developing similar programs.<sup>40</sup> Through its Agency for International Development it has given substantial financial and technical assistance to countries in South Asia, Africa, Far East, and Latin America. It also supplies specialists to these countries.

Unesco. Unesco has encouraged and assisted in the production and utilization of Audio-Visual materials in many countries. Unesco's assistance has been in ways of providing technical assistance in building up mass media services which have also been designed to promote the development of mass media for educational purposes. Such experiments in adult education as the development of a rural radio network in Colombia have been encouraged in order to break barriers of ignorance in the most isolated communities.<sup>41</sup> Unesco also has sent films and filmstrips to Costa Rica, Haiti, Indonesia, Panama, and Sudan to help the governments set up visual units.<sup>42</sup> Regional projects have also been established.

---

<sup>40</sup>The Multiplier (Washington: Agency for International Development), September, 1959; January, 1963.

<sup>41</sup>Eugene Sochor, "Unesco's Role in Education," School and Society, 89:434, December 16, 1961.

<sup>42</sup>Ibid.

For example, the Regional Fundamental Education Center in Latin America<sup>43</sup> was established in Mexico, and the Arab States Fundamental Education Center in Egypt.<sup>44</sup> Visual aids units were attached to them for the training of field-workers in the use of those aids and for the production of materials. With Unesco's help, the Latin American Institute for Educational Film<sup>45</sup> was created in 1956. The Institute is now well established and has a large-scale production program, particularly of filmstrips.

Unesco welcomed the suggestion put forward by the Regional Seminar on Visual Aids for Fundamental Education and Community Development in South and South East Asia, which was held in New Delhi in 1958, that a visual aids center for that region be set up.<sup>46</sup>

Most of Unesco's work in the Audio-Visual field in technically under-developed countries has been with filmstrips and non-projected materials. There is extended scope for work with television and radio.

---

<sup>43</sup>H. De Jong, "Unesco's Programme for Audio-Visual Media in Schools," The Year Book of Education (New York: World Book Company, 1960), p. 567.

<sup>44</sup>Ibid.

<sup>45</sup>Ibid., p. 568.

<sup>46</sup>Ibid.

Unesco also provides fellowships in order to enable those who have been trained by its mission to perfect their knowledge by studies abroad.

Unesco could be playing a major role in the development of newer educational communications media if the recommendations of a conference on new methods and techniques in education held in Paris in March, 1962, under its auspices are adopted. The major purpose of the conference was to examine the potential uses of the newer educational communications media for the reduction of illiteracy. The recommendations<sup>47</sup> covered five areas: (a) demonstration projects, including centers for production and application of illustrative programs. Regional centers in Africa, Asia, and Latin America should be created for demonstrating the systematic use of all media, materials, and methods for education. The functions assigned each center would include demonstrations of new media techniques, training of media specialists, experimentation and research, the development and evaluation of new materials and dissemination of information to national and other regional institutions; (b) research and development--that Unesco initiate means for research at the international level. The research program

---

<sup>47</sup>A. A. Lumsdaine, "UNESCO Educational Media Conference Recommendations," Audio-Visual Communication Review, 10:338-342, November, 1962.

should be guided by the following points: (1) maximum educational gain at minimum cost, (2) try to eliminate existing illiteracy as rapidly as possible. Careful study should be made of the successful experience of some countries such as Italy, which successfully used television to overcome illiteracy, (3) teaching machines and programmed instruction were also stressed; (c) development of facilities--that efforts be made to develop and make available reliable low-cost radio and television transmitting, recording, and receiving equipment; (d) training--that Unesco take steps to insure the training of personnel in several important categories; (e) exchange of information and materials--that results of research and development of newer methods and techniques be made available in periodic publication in several languages. Conferences or panel meetings should be held from time to time among specialists.

## CHAPTER IV

### NEWER EDUCATIONAL COMMUNICATIONS MEDIA

Developments in communication media depend in part upon existing levels of technology. Picture languages, hieroglyphics, mathematical symbols, and alphabets were devised to meet certain problems of communication. Methods of recording them depended upon the materials and tools available. Each new technique had important implications for education. Scientific and technical knowledge have made possible the development of many new media of communication. These media are in many ways different from older media and are designed to increase audience size and to be more advantageous. They also give a permanence to messages which enables successive generations to receive them. Newer media have broken through most of the physical barriers to communication. Time lags between transmission and reception; distances reached and geographical areas covered can all be measured. The time is not far off when a world-wide audience will be able to receive messages from any part of the world almost instantaneously. The degree to which new media contribute to the learning responses is thus important in assessing their educative value.

#### I. MEDIA FOR MASS COMMUNICATION

Radio. The radio is used extensively as an educational



medium for mass communication, especially in countries where the population in certain parts is sparse; it is difficult to organize regular classrooms and to secure properly qualified teachers. Australia, Canada, and New Zealand are faced with these problems.

In Australia<sup>1</sup> more than half of the population lives in a few cities and large towns, but more than half of the schools are in rural areas. A high proportion of these quite small rural schools are one-teacher single-classroom schools. In these schools, and especially in the one-teacher schools, radio has become an essential part of education. It literally provides the small and isolated school with the diversity of staff and richness of curriculum of the large school. It supplies information outside the teacher's own endowment, provides experiences in singing, music, and drama, and keeps the teacher in touch with ideas and teaching methods.

There are also vast areas of Australia, such as the isolated stations for ranches, prospectors, linesmen, hunters, and inland missions, where the population is so sparse that it is physically impossible or economically impracticable to provide schools. The children in isolated homes depend for their education upon the State correspondence

---

<sup>1</sup>C. R. Bull, "Symposium on Mass Media in Australia," The Year Book of Education (New York: World Book Company, 1960), pp. 315-16.

schools. Radio plays a significant part in this service through its regular programs designed in close cooperation with the correspondence schools.

The Australian Broadcasting Commission broadcasts over a country-wide network of medium and short wave stations. Thus, there is a nation-wide system of radio broadcasting to schools. This type of mass media of communication is playing a large part educationally in introducing fresh ideas and new methods of teaching and in presenting a better quality of education to small communities. This would not have been possible without radio.

In Canada, where there are also sparsely populated rural areas, radio is largely used in education. It is also used for curriculum enrichment and for assisting teachers who are not fully qualified. In provinces such as Newfoundland and Nova Scotia up to fifty per cent of the teachers are not fully qualified to teach, while in the cities there is no shortage of adequate teaching personnel. In Newfoundland radio has been found effective as a means of direct teaching in conjunction with correspondence courses.<sup>2</sup>

The population of New Zealand is small in relation to the physical size of the country and over fifty per cent is scattered in the rural areas. The provision of public

---

<sup>2</sup>World Survey of Education. II. op. cit., p. 266.

primary schooling is complemented by services which permit the isolated child, unable to attend at school, to enjoy a standard of education in keeping with that of the rest of his colleagues. The system of correspondence education runs from the primer classes to university entrance. These postal lessons are supplemented by four or five half-hour broadcast sessions sent each week over all the main radio stations.<sup>3</sup>

In less developed countries of the world where illiteracy is high radio is playing a most significant part in the education of adults. The spread in this mass communication network is rather striking. In Indonesia,<sup>4</sup> for example, between 1950 and 1955 the number of radio receivers nearly quadrupled, rising from 85,000 to 326,000. In Iraq,<sup>5</sup> they have more than doubled during this period. In most underdeveloped areas, the spread of radio is more rapid than the spread of literacy. Quite a few Asian and African national leaders have recognized the significance of this fact. President Nasser of Egypt said a few years ago: "It is true that most of our people are still illiterate. But politically that counts for less than it did twenty years

---

<sup>3</sup> Ibid., p. 770.

<sup>4</sup> W. Phillips Davison, "Modern Mass Communication," The National Elementary Principal, 39:40, May, 1960.

<sup>5</sup> Ibid.

ago.....Radio has changed everything.....Leaders cannot govern as they once did."<sup>6</sup>

Motion Pictures. As an educational medium for mass communication, the motion pictures are used extensively in underdeveloped countries to overcome illiteracy. Many of these countries have a mobile film-unit which travels about the country showing educational films to large groups of people who gather together for an outdoor showing. The mobile film-unit is equipped with a motion picture projector, a public-address system, and a generator so that it can be used in settlements which have no electricity. It is interesting to note how this is achieved in many countries. Many foreign embassies in these countries assist by supplying films and other equipment.

Iran is a good example of such a development in motion pictures. Educational motion pictures were totally unknown in Iran<sup>7</sup> as late as 1950. These specialized films have now penetrated almost every corner of the country and Iran has dedicated a \$1,500,000 Audio-Visual Center for the continued production and utilization of educational films and other Audio-Visual aids. This venture in mass education

---

<sup>6</sup> Ibid., p. 41.

<sup>7</sup> Don G. Williams, "A V in Iran," Educational Screen and Audio-Visual Guide, 38:12-15, January, 1959.

through motion pictures began in 1950 when the United States of America decided to undertake this project to assist in overcoming illiteracy in Iran. The State Department invited Syracuse University to undertake the production of instructional films in Iran. Filming was done in Iran with villages as settings, local villagers as actors, and colloquial language on the sound tracks. The Iranian government recognized the value of films as a communication device in a country where illiteracy is high.

Israel<sup>8</sup> is another country trying to educate a population of varied background comprising Jews from several countries, as well as Moslems, Christians, and Druse. Over half of the population had immigrated during the last ten years or so. Here again Audio-Visual materials, which help to pierce the barrier of a strange language and which make new concepts understandable, are highly prized and widely used. Among these is the motion picture. The only mobile film-unit visits about twenty settlements a month. Other programs are delivered via jeeps with the few projectors getting hard use. In addition to materials produced locally, American films and filmstrips, distributed by the United States Government or sent by producers, are in wide use throughout the country.

---

<sup>8</sup>Florence Freedman, "Israel, Giant Laboratory," Educational Screen and Audio-Visual Guide, 38:124, March, 1959.

Other technically underdeveloped countries in Asia and Africa are similarly making use of motion pictures and are accomplishing this task chiefly through the mobile film-unit.

Television. Within a decade television has passed through three stages of development. It was first confined to the more industrialized countries of Northern Europe, North America, and Japan. It was then established in almost every economically developed nation of the world. Today, it is in its third phase with the establishment of television stations in technically underdeveloped Thailand, India, and Iraq, as well as Latin America and, now, Africa.<sup>9</sup>

A new type of school-house appeared on the scene at Hagerstown, Maryland,<sup>10</sup> where a single television center provides lessons in about thirty-nine different subjects to many thousands of students. Hagerstown was chosen in 1956 by the Fund for the Advancement of Education for its most ambitious project in the use of closed-circuit television in education. The county board of education at Hagerstown had planned the installation of television receivers in new schools even before the town was selected

---

<sup>9</sup> Henry R. Cassirer, Television Teaching Today (Paris: Unesco, 1960), p. 16.

<sup>10</sup> Ibid., pp. 29-31.

for the pilot project. The reason for this was to overcome some of the existing problems, dominant among which was the lack of adequately trained teachers to educate a constantly growing number of pupils.

Six studios were provided which make it possible to present twenty-three school lessons each day or a total of 115 lessons a week in thirty-nine different subjects. Each lesson program varies from fifteen to twenty minutes for primary grades to sixty minutes for high school classes. The studios were linked by coaxial cables to twenty-three elementary and high schools housing 12,000 children; in 1959 another twenty-five schools were added to the system and eventually all 18,000 pupils throughout the county will receive television in 1,200 classrooms.<sup>11</sup>

Television is not new to Philadelphia's<sup>12</sup> classrooms. Broadcasts of school programs over both commercial and educational stations have become a regular part of teaching. The reason for introduction of television in the schools of Philadelphia was the desire to provide additional resources to make teaching more vivid and interesting. There was also a concern for the quality of teaching because of a shortage of teachers and the employment of some 600

---

<sup>11</sup>Ibid.

<sup>12</sup>Ibid., p. 38.

substitute teachers.

The program brought to the classroom the foremost teachers as well as outstanding individuals and valuable materials. The audience grew as teachers, supervisors, and parents began to realize the value of the television lessons. By 1959 well over 200,000 pupils viewed telecasts in schools every week. Parents have indicated their support for the program by contributing through different organizations for the purchase of receivers.

As of October, 1961, there were sixty noncommercial educational television stations in the United States of America serving an area that included a population of about seventy million.<sup>13</sup> Different states, cities, and universities have applied for the reservation of some 274 VHF and UHF channels for upcoming educational television stations.<sup>14</sup> There are over 300 closed-circuit television systems in different educational institutions throughout the country.<sup>15</sup> The Midwest Program on Airborne Television Instruction demonstrates the confidence placed in television teaching. This project was financed by philanthropic organizations.

---

<sup>13</sup>Current Developments in Educational Television,  
loc. cit.

<sup>14</sup>Ibid., p. 6.

<sup>15</sup>Ibid., p. 23.



The Ford Foundation alone gave \$5.5 million.<sup>16</sup> Transmitted from an airborne transmitter on an airplane flying at 23,000 feet above the earth, programs<sup>17</sup> are available to schools in a 200 mile radius, which includes a six-state area and 13,000 schools. Instructions in twenty-one subject areas are transmitted over two channels. By 1965 it is hoped that there will be four or six channels with the number of program hours tripled or quadrupled to a possible total of 180 a week.

It is quite clear that quite a number of students have been taught by television. At the university level, some 500 courses have been given solely by television.<sup>18</sup> At the primary and secondary school levels, countless enrichment programs have been made available. Television is also widely used in adult education. An example of this is at Memphis, Tennessee,<sup>19</sup> where the educational television station is cooperating in producing a television series for teaching reading and writing to adults who never went to

---

<sup>16</sup>ETV, A Ford Foundation Pictorial Report (New York: Ford Foundation, 1961), p. 46.

<sup>17</sup>Mendel Sherman, "MPATI's Promise, a Summing Up," Phi Delta Kappan, 43:326, May, 1962.

<sup>18</sup>Kumata, op. cit., p. 286.

<sup>19</sup>Current Developments in Educational Television, op. cit., p. 19.

school or whose reading ability is so slight as to be practically useless to them.

South Carolina<sup>20</sup> presents another example of benefits derived from support given to educational television. Between twenty-five per cent and thirty percent of the population of South Carolina consists of school age children. The tax base is not expanding as fast as are the demands for educational improvements. In seeking ways to improve education, a pilot closed-circuit television project was instituted four years ago. Convinced of the potential of closed-circuit educational television, the legislature appropriated funds in 1961 to extend the system on the first leg of a state-wide facility. By September, 1962, the microwave and coaxial cable network had grown until it reached into all the counties in the state, serving 150 schools, eleven colleges, and five hospitals. The only source of income for this program is the appropriation made by the state legislature.

The United States Government gave educational television a vote of confidence when in April, 1962, Congress appropriated \$32 million<sup>21</sup> to help expedite the construction

---

<sup>20</sup>George E. Bair, "ETV in South Carolina," Audio-Visual Instruction, 7:696-97, December, 1962.

<sup>21</sup>"Federal Aid for Educational Television," School Life, 44:30-31, June, 1962.

of new educational television broadcast facilities for schools, colleges, and non-profit community organizations. This amount was authorized for the fifty states, the District of Columbia, and the Commonwealth of Puerto Rico with the idea that most states will use less than the maximum amount available to each state. (No state may receive more than a total of \$1 million.)

Other countries are also making similar use of television. The principal concern of educators in France,<sup>22</sup> for example, is the growing school population. Experimentation in educational television began in order to find a solution. In 1949-50 schools began to acquire television sets. By 1953-54 four and a half hours of live programs a week designed for elementary, technical, vocation and secondary schools were broadcast. By 1959 there were approximately 3,000 schools with receivers. The use of television in the classrooms in France has been the subject of a number of ministerial directives which invite teachers to use television. The Minister of Education pointed out that television was not intended to take the place of the teacher but rather to make available to the teacher new resources among which he may choose as he sees fit.

---

<sup>22</sup> Cassirer, op. cit., pp. 198-202.

In Italy<sup>23</sup> about twenty-five out of every one hundred children register for the middle school, which enrolls children ranging in age from eleven to fourteen. The drop-out continues year by year, with the result that not more than two of the original one hundred students complete a university education. In many of the smaller towns and communities no middle schools are available. Thus, children are unable to continue their formal education beyond primary school unless they leave home and move into urban areas. Italian television authorities decided in 1958 to co-operate with the Ministry of Education in launching Telescuola, which consists of the complete course of instruction normally given in the middle schools. Telescuola, the most extensive project in Italy, couples television with teaching by correspondence. By the beginning of the second school year of the program in 1959, there were more than 2,000 reception points each accommodating about fifteen to twenty students. In addition there was a wide audience among home viewers. It is believed that between 50,000 to 100,000 students were taking the courses. This was supported by the fact that 65,000 copies of the accompanying textbooks were sold.

Italy has been so successful in using television to overcome illiteracy that a conference held under the auspices of Unesco to examine the potential uses of the newer

---

<sup>23</sup>Ibid., pp. 217-219.

educational communications media for the reduction of illiteracy recommended that Italy's program be studied with the idea of introducing it in other countries for the same purpose.

## II. MEDIA FOR CLASSROOM GROUPS

More and more emphasis is being placed on newer educational communications media for classroom use. This is especially true in the United States of America but other countries are also introducing newer media into the classrooms.

Tape Recorders and Record Players. The tape recorder and record player with their tape and disc recordings respectively bring to the classroom songs, music, poetry, drama, speeches, discussions and sounds of all kinds from the world of nature and the world of man. There is a wide variety of recordings suitable for school use in different areas. The excellent recordings of Shakespeare's plays may be used in English or speech classes. Ballads may be used in music classes, or in social studies for their reflection on historical events. Special pre-recorded tapes for teaching have been produced principally for the teaching of foreign languages. Tape recordings can also be made by the teacher and pupils. A radio broadcast or a television broadcast of school interest given outside school hours or at a time not

convenient for the class may be recorded and played back when it fits the curriculum topic. The tape recorder has other classroom uses as well. The speech of students can be recorded so that they can hear themselves and be motivated to make improvement. Individual or group reports, panel discussions, or any oral exercise in the classroom may be recorded and played back for critical review. Recordings can be made of the noises of the different animals and insects and brought to the science classroom for students to identify. The tape recorder may also release the teacher for other tasks. A teacher can record practice materials in spelling and mathematics for example, and let the recorder do the mechanical job while he observes the class and helps individual students. These tapes may be used by individuals or groups for extra practice. Absentees can use them for making up the missed class.

Recordings also allow for participation. They can be stopped to allow for questions or discussion and played again to clarify a point. Since recordings have the advantages of being inexpensive and easily stored, a class or school library of recordings can be easily acquired.

Opaque Projector. The Opaque projector can project a picture or small object in its original colors on a screen so that an entire class can see it. This projector shows pictures ranging in size from a postage stamp to  $8\frac{1}{2}$  x 11 inches.

Among the materials<sup>24</sup> that can be projected are stamps, flat pictures, postcards, student compositions and drawings, tests, maps, charts, graphs, and printed materials in pages or book form. The book or periodical can be inserted whole. Among objects which can be projected are coins, medals and shallow dishes such as Petri dishes with cultures. Pictures can be mounted and taped together to form a picture roll to illustrate a consecutive story.

The opaque projector is a bulky machine and requires some darkening of the room. Despite these drawbacks the advantages far outweigh the disadvantages. The machine is quite simple and easy to operate. It allows for a great amount of pupil participation in selecting, creating, projecting, and discussing materials. Quite a variety of materials are available for use with it. A teacher has an endless source of free and inexpensive materials which can be projected without requiring any processing.

Overhead Projector. The overhead transparency projector transmits a strong beam of light through a transparency and onto a screen. The machine is operated from in front of the class with the instructor facing the class and the screen behind him. The machine uses transparent acetate materials on which the instructor writes or draws in the

---

<sup>24</sup>Freedman, op. cit., p. 48.

course of the lesson and this writing or drawing appears on the screen. Since the acetate roll is built into the machine, the teacher can prepare panels ahead of time and roll them into position by turning a small crank. Diagrams, lesson assignments, tests, and similar material can be effectively presented in this way and with minimum effort and time.

The projector also uses any type of transparencies such as slides of all sizes and larger transparent sheets of up to 10 x 10 inches. Anything that can be traced, drawn, written, typed, or photographed on a transparency can be projected clearly on the screen. In addition, the teacher can present his materials one step at a time by means of overlays. Successive layers of transparencies in black and white or color can show progressive stages of development, sequences, and sectional views. An example of this is a series of physiological charts showing various aspects of the human body with one system being superimposed on the other. Numerous commercial producers have prepared entire courses of instruction in transparent form.

Since the overhead projector is operated from the front of the room, the teacher is able to face his class and maintain direct eye contact with his pupils at all times. The room does not need to be darkened. By means of the projected material on the screen a class of hundreds of students can clearly see what could be visible to only a small group if the chalkboard were used instead.



Slides and Slide Projector. The 2 x 2 inch slide has become a valuable and a popular teaching tool since the development of 35 mm. camera and color film.<sup>25</sup> These slides can be shown in individual slide viewers or projected onto a screen by means of a slide projector so that the entire class can see them at the same time. These slides make foreign countries, historic places, and natural phenomena more real to the students who view them. The instructor can make his own slides without much difficulty because the exposed films come back from the processor in cardboard mounts ready for projection.

Slides also come in another size-- $3\frac{1}{2}$  x 4 inches. These are either plastic or mounted in glass and are the usual choice for hand-made slides. They can be made rather easily on etched glass, translucent plastic, cellophane, or clear glass.

Convenience of use, quality, low cost and ease of procuring are among the principal reasons for the great popularity of slides. Commercial slides are also available on a great many subjects for different grade levels.

Development of the Polaroid transparency<sup>26</sup> within the last few years has made possible another significant use

---

<sup>25</sup>Walter Wittich and Charles Schuller, Audio-Visual Materials (New York: Harper and Brothers, 1962), p. 336.

<sup>26</sup>Ibid.

of  $3\frac{1}{2}$ " x 4" slides. With this film and a Poloroid camera, the instructor can make a slide of any desired subject in a few minutes, place it in the plastic holder provided for this purpose, and project it immediately.

Different types and varieties of projectors are available. Some are adapted for showing just one type of slides while others can show both sizes of slides mentioned. Some 2" x 2" slide projectors are also adapted for showing 35 mm. filmstrips. Some are remote controlled and can be operated by the instructor from the front of the classroom.

Filmstrips and the Filmstrip Projector. A filmstrip is a related sequence of still pictures on a strip of 35 mm. film. The pictures may be in color or black and white, silent or sound, and range from 10 to 100 frames or even more. The text of a silent filmstrip may be given by means of captions at the bottom of each frame. Sound filmstrips have commentary on an accompanying recording on disc or tape.

In teaching with filmstrips, the teacher can stop at a frame and hold it as long as necessary. He can then ask a question about the picture, clarify the concepts involved, or conduct a discussion while the picture is on the screen. Because filmstrips are inexpensive to produce, a wide choice of titles is available from commercial companies.

The projector is relatively inexpensive, light in weight, and easy to operate. Some projectors are dual

purpose and are adapted for showing 2" x 2" slides. Many are also remote controlled.

The Tachistoscope and Controlled Reader. The tachistoscope is a timing device used with an overhead slide projector which permits a brief, accurately timed flash exposure of a slide. The tachistoscope enables the instructor to flash word or number groups onto the screen at speeds ranging from one-hundredth of a second to  $1\frac{1}{2}$  seconds. It is used to increase speed of recognition, reading, and comprehension. It is also used in the teaching of reading at all levels, from first grade through college, of vocabulary, spelling, number combinations, and shorthand symbols.

The controlled reader, a type of filmstrip projector designed to reveal words singly, in groups, or in lines at a controlled rate of speed ranging from sixty to one hundred words a minute, is used for increasing speed in reading.

Motion Pictures. Schools began using more and more motion pictures after they were made from a non-flamable material. Motion picture films used in schools are usually 16 mm. width. The development of 8 mm. sound film and projectors will greatly enhance the use of films in schools. Most classroom films now have sound and are available in black and white or color.

Films<sup>27</sup> are valuable for bridging distance in place or time and for demonstrating skills and concepts which include action or motion. A plant's growth from seed to fruit, which takes months in actuality, can be shown by time-lapse photography in minutes. Other actions, such as the beating of the heart, can be shown in slow motion. Motion pictures can also broaden the student's understanding of people and situations that are beyond his own experience. It can take students to foreign countries, under sea, into the human body, into an airplane, and into space. Because of the combination of sight with sound, the motion picture compels attention. It also heightens reality.

Radio. Radio affords still another educative listening experience. Through it students can listen to an event at the very moment it is taking place. This immediacy in recording a report appeals to pupils and has an advantage over textbooks which are often out of date. It is rarely possible to find a teacher who is an expert in every phase of the subject he teaches. This is particularly true in high schools. Radio programs can provide expert knowledge when expert consultants are used.

Through radio, master teaching.....can provide enrichment experiences both to the pupil, in the form of

---

<sup>27</sup>Freedman and Berg, op. cit., p. 58.

additional useful information or techniques, and to the teacher, as models to be followed. New ideas about classroom procedures often supplement information perceived when a carefully planned and produced radio "lesson" is used at the appropriate time in the local classroom.<sup>28</sup>

Radio has generally been used not for the teaching of whole courses but for enrichment.

Television. Television broadcasts to schools are of two types, open-circuit and closed-circuit. Open-circuit, or broadcast television signals, are transmitted by means of a transmitter which sends these signals through the air. The signals can then be picked up by a receiving television set attached to an antenna within the vicinity covered by the broadcast. In the United States of America television is provided by two types of stations, commercial stations and non-commercial or educational television stations (ETV). Educational television stations, owned and operated by colleges, universities, cities, counties, or states, are used for educational broadcasts to schools, colleges, universities, and adult viewers at home. Closed-circuit television (CCTV), as the name implies, means that the transmission is confined within a certain area, such as a college campus or a number of schools linked by coaxial cable, and is not available for general viewing. Since

---

<sup>28</sup>Wittich and Schuller, op. cit., p. 271.

signals are transmitted through the coaxial cables, only those receiving sets connected to these cables can receive the broadcast. Closed-circuit can be installed for a single classroom or a single school system, or to cover a wider area such as a county with 1,200 classrooms as at Hagerstown, Maryland.<sup>29</sup>

Television broadcasts, combining picture with sound, utilize both the viewer's eyes and ears. This feature makes the television broadcast superior to the radio broadcast. Because it provides both audio and visual sensations, its program is likely to be superior in certain respects to the lectures of the classroom teacher who depends on or resorts largely to words. The source of visual aids is limited to the classroom teacher because the classroom can only accommodate certain types of materials. The television's source of visual aids is unlimited in that the television camera can conquer size, distance, and many other physical obstacles.

Educational television broadcasts are used for two main purposes, for providing enrichment to the curriculum and also in direct teaching as a supplementary or sole means of instruction. Television makes available to the teacher resources which would not normally be at his disposal.

---

<sup>29</sup>Cassirer, op. cit., p. 30.

Close-ups can bring to an entire class visual experiences which ordinarily would come only to a few. Even distant places and outstanding persons can enter the average classroom through television. A master teacher can share his knowledge and skills with several classrooms instead of just one. His expert demonstrations, methods, object-lesson explanations of grammar or arithmetic can be televised to these classrooms. Since 1955 well over 1,000 separate investigations have been made in the United States of America<sup>30</sup> to determine how television can be used in current educational situations. It was found that pupils learn as much from educational television as they do from traditional face-to-face teaching. In many cases, the learning outcomes from television were superior to those of face-to-face teaching.

Television is used for direct teaching in many educational institutions. Notable among these is Chicago City Junior College,<sup>31</sup> where instructions are given solely by television and where 1,261 persons have registered for the different courses offered for credit. The regular viewing audience, however, ranges from 5,000 to 35,000 persons.

---

<sup>30</sup>Wittich and Schuller, op. cit., p. 414.

<sup>31</sup>Current Developments in Educational Television, op. cit., p. 18.

Television has its limitation in that it involves a one-way communication process. Thus, students cannot ask questions as they may in a classroom with a teacher. However, it is possible that this handicap can be compensated for in the course of program planning. New developments in television receivers with a two-way communication system can remedy this situation. A television demonstration<sup>32</sup> can be devised with excellent student questions and the teacher answers "built into" the program.

### III. MEDIA FOR INDIVIDUAL LEARNING

Newer educational communications media also cater to the individual learner. Notable among these are the tape recorder and the teaching machine, which can provide individual instructions.

Tape Recorders and Language Laboratories. The tape recorder is used extensively in the United States of America in modern foreign language laboratories. An individual student can listen to a master tape on the foreign language. He then tries to imitate it and at the same time records his efforts for comparison with the original. Self-improvement through correction and through practice continues until he gains the ability to say the foreign words well and to know

---

<sup>32</sup>Dale, op. cit., p. 202.



their correct meanings. The individual student can also use the tape recorder in speech class for self-improvement. In shorthand and typing laboratory classes individual students use tape-recordings for practice in developing speed and accuracy.

When there is no native-speaker teacher available, the best place in a school in which to learn a foreign language becomes not the book or the traditional grammar-translation classroom, but "the electronic classroom." The electronic language laboratory is comprised of a master console and an inter-communication system to individual student booths. The student can listen to master tapes from his own booth, which is provided with a tape-recorder and earphones, and can also make recordings of his own efforts.

Teaching Machines. Automated learning came into being around 1926 when the first mechanical teaching machine was designed by Professor Sidney L. Pressey of Ohio State University.<sup>33</sup> This early research work has been repeated and improvements made by many investigators; among whom is Dr. B. F. Skinner of Harvard University.

A teaching machine is a mechanical device which can be operated easily by a student as he makes his own way

---

<sup>33</sup>Benjamin Fine, Teaching Machines (New York: Sterling Publishing Company, 1962), p. 37.

through learning materials. The inexpensive Min-Max<sup>34</sup> demonstrates the simplicity of operation. To ready it for use, one fills it with 8½" x 11" sheets of paper on which questions and answers are printed. The number of pages varies with each subject. The pages are divided into frames. Each frame contains a single unit of information, a question about it, space for a written answer, and a printed correct answer which cannot be seen until the student has made his own response. When the correct answer is moved into view, the student's answer slides behind a plastic screen and so cannot be changed. Some machines use different types of materials and are operated slightly differently.

By early 1962, eighty-three<sup>35</sup> different types of teaching machines, developed by sixty-five companies, were already on the market. Even more significant is the fact that 630 programmed courses have been prepared for the numerous variations of models that exist. Just about any subject can be taught through programmed instruction with teaching machines.

Almost all the teaching machines have such characteristics in common as the following:<sup>36</sup>

---

<sup>34</sup>Ibid., p. 39.

<sup>35</sup>Ibid.

<sup>36</sup>Wittich, op. cit., p. 464.

1. Study materials are arranged in step-by-step sequences of exact questions to which the learner responds overtly, usually by selecting, manipulating, or writing in answers.
2. The learner is given immediate knowledge about the correctness of his responses.
3. He proceeds at his own pace and thus is free of the restrictions on individual progress commonly associated with classroom group instruction.
4. Information is presented in such a way that it leads him forward logically and with comprehension from one step to the next and requires his sustained participation.

Research evidence showed the teaching machine to be an effective teaching tool. A teaching machine experiment<sup>37</sup> at Roanoke, Virginia, showed eighth-grade pupils accomplished a full year's course in algebra in one semester--half the time required by the other ninth-grade pupils who took the traditional course. Forty-five per cent of the eighth-grade group attained the level of performance attained by fifty per cent of the ninth-grade group.

Teaching machines can help to overcome the problem of teacher shortage. It has been demonstrated<sup>38</sup> that the new machines enable the teacher to handle up to twice as many students as before. The teaching machines could also probably help solve the problem of mass illiteracy that exists in many underdeveloped countries because of the lack of classroom space and qualified teachers.

---

<sup>37</sup>Ibid., p. 469.

<sup>38</sup>Fine, op. cit., p. 112.

Programmed learning is no longer solely an American product. It has been introduced in Italy, France, Greece, Germany, and the Federation of Rhodesia.<sup>39</sup>

Many programmed texts are designed for use without the machines. An example of this is the "scrambled book." In this book, a unit of information is given on one page along with a multiple choice question. Each choice is tagged with a different page number referring the student to an explanation of why a particular choice is right or wrong. On wrong choices the student is usually told to return to the original question and try again. On correct choices he begins the next step after reading the feedback for the right choice. Thus, the elements of an intrinsic program step are scattered over several pages.

---

<sup>39</sup>Ibid., p. 66.

## CHAPTER V

### RECOMMENDATIONS FOR IMPLEMENTING NEWER EDUCATIONAL COMMUNICATIONS MEDIA CENTRAL SERVICES IN BRITISH GUIANA

The major purpose of this study is to recommend a feasible newer educational communications media program for British Guiana.

Characteristics of a Desirable Educational Communications Media Program. In order for the educational communications media program in British Guiana to function properly and achieve its goal it must possess certain outstanding characteristics. It should function as a part of the Department of Education but yet maintain a certain degree of individuality and uniqueness of its own.

The proposed program should undertake to meet the needs of education in a modern technological world. This could be accomplished by making available to teachers the valuable Audio-Visual instructional tools the Educational Communications Media Department can provide. The Department should also provide suitable Audio-Visual materials for different grade levels. These materials should be of the type that would enrich the curriculum, make teaching easier and learning more interesting, and provide pupils with the necessary experience they lack through traditional

instruction.

The Department should work in cooperation with educators and teachers in planning the curriculum and informing them about the different types of materials available and how these might be properly used to accomplish different purposes. The training of teachers in the use, care, and handling of Audio-Visual materials and equipment should be undertaken by the Department. Regular seminars and workshops should be conducted.

It is the obligation of the Department and its staff to endeavor to equalize, enlarge, and enrich the educational opportunities of all children in all the schools by supplying them with well-made and carefully selected Audio-Visual materials. The staff should assume the responsibility for the procurement, preparation, distribution, storage, and maintenance of Audio-Visual materials and equipment. The internal organization necessary for smooth and efficient service must be worked out and continuously evaluated by the staff. The kind of service offered to the schools would depend upon the spirit of service which permeates the entire staff.

Teachers should cooperate with the Department by requesting materials well ahead of time, by making suggestions for improvements in services, and by assisting in previewing and evaluating different materials. They should also be willing to assist in the production of special

program materials.

Since an expanded Audio-Visual program would include certain newer educational communications media, the Department should then undertake to inform the public about them through appropriate communication channels. The public should be well informed in order to have a clear concept of these newer educational communications media and to realize their educational values because help would be solicited from the public in order to provide schools with the appropriate equipment.

The Department should work with the Ministry of Education in formulating policies and objectives. It should undertake the job of preparing a budget and also of evaluating its progress and achievements from time to time.

Location of the Central Educational Communications Media Center. The Center should be located in Georgetown, the capital of British Guiana. In Georgetown are located the main offices of the different government departments, the main shopping and business centers, the offices of different foreign consulates, and the head Office of the Department of Education of which the Educational Communications Media Department would become a part. Government Training College for Teachers, the only institution of its kind in the colony that provides professional training for teachers, is also located in Georgetown as are the colony's

two radio stations. This would mean that at this location the Educational Communications Media Department could transact its business more efficiently and in less time since most of the advice and information needed could be obtained from departments and organizations near by.

Since Georgetown is situated in the central area of the three counties which form the colony, its proximity would facilitate the distribution of materials to either adjacent county. Because most of the experts and specialists in different fields reside in Georgetown, their help in the production of programs for enriching the curriculum could be easily obtained without much loss of time on their part.

Organization. Experts in the field of Audio-Visual instruction could be obtained from abroad to organize the program. These experts could probably be obtained without any cost to British Guiana from the United States of America through its Agency for International Development program or from Unesco. The Educational Communications Media Director for the program could be appointed at this time to work with these consultants in organizing the program.

A survey should be carried out to determine what materials and equipment are available for use by schools and the proposed Educational Communications Media Department. All materials, equipment, and facilities that would be managed by the Department should be consolidated into one Department. A survey should be made to determine existing



needs for the program and what facilities should be provided to the schools so that they can make use of the program. The amount of finance available for the program should be known. The final plan for the program should then be made and the program implemented perhaps on a smaller scale at the beginning so as to keep within the budget but with scope for improvement and expansion.

Administration. In the United States of America the Audio-Visual program functions best when it is in a coordinate relationship with other parts of the instructional program. This could be adopted for British Guiana and the program could be organized to function as a part of the Department of Education. Its status in the administrative organization should be coordinate with that of other parts of the instructional program.

The director who is appointed to head the Educational Communications Media Center should have status as chief of his center. He should be an administrator in this division or center only. He may be regarded by teachers and education officers as an expert in his field. Though a chief of his division, he should be responsible to the Director of Education.

Finance. The setting up of an Educational Communications Media Center in British Guiana would, in terms of the country's economy, require a substantial amount of

money that the government could hardly afford. However, careful consideration of the matter would reveal a better picture. There is the possibility that British Guiana might be able to obtain financial help from abroad. The United States of America, through its Agency for International Development, has from time to time made generous and substantial contributions both financially and otherwise to several countries for developing and improving educational facilities including the setting up of Audio-Visual centers. It has shown much concern over the past several years in the illiteracy problems of underdeveloped countries.

Unesco has also taken an active interest in educational problems the world over. It has helped to provide educational facilities in several countries, including Audio-Visual instructional materials. Unesco could be playing a vital and most important role if the recommendations of the conference held under its auspices in Paris in March, 1962, to examine the potential uses of the newer educational communications media for the reduction of illiteracy are adopted. British Guiana would benefit tremendously from such a function of Unesco.

Private organizations in the United States have given generous financial support for research, experiment, and implementing newer educational communications media program. This is another resource to which British Guiana could make inquiries for possible assistance. Producers of educational

films and filmstrips have also given free films and filmstrips for starting a film library. Foreign countries were among the beneficiaries.

Should British Guiana fail to receive foreign aid or enough of it for its program, then there is yet a feasible alternative. The proposed newer educational communications media program utilizing television could be financed jointly by government and private enterprise. The government would use the facilities during the day solely for educational purposes. This would be for the five school days of the week. The private enterprise would use it during the nights and on week-ends for entertainment and commercial purposes. Such an agreement could reduce the cost to the government by nearly half, depending on the arrangements. The government could probably undertake the project entirely on its own and use the facilities during the nights and week-ends for non-instructional purposes.

The purchase of television receivers for schools could probably be undertaken by the schools themselves. They could solicit help from the community and from the parents of children attending the respective schools. A similar enterprise was successfully undertaken by the schools in purchasing radio receiver sets. The government could make concessions in the purchase of equipment by the school by exempting them from taxes.

Staff and Services. The proper functioning of the Educational Communications Media Center and the type of services it could offer would depend on its staff. The staff should fall within the following categories: administrative, clerical and secretarial, engineering and technical, production, and talent.

Serving as administrator would be the Director of the Educational Communications Media Center. He should have broad educational experience. He should have training and experience in teaching, administration, and supervision and should also have the necessary professional training in Audio-Visual education. He would be responsible for implementing policies and coordinating such activities of all departments within the center as programming, production, distribution, engineering, and office routines. Among his many duties should be the following:<sup>1</sup>

1. General organization and administration of the center.
2. Supervision of personnel.
3. General direction of (a) production (b) instruction (c) distribution.
4. Budget making.
5. Preparation of manuals, bulletins, catalogs, and lesson units on the techniques and uses of Audio-Visual materials.
6. Organize Audio-Visual education conferences.
7. Teacher-training in the use of equipment and various types of Audio-Visual materials.
8. Search for sources: examination, evaluation, and

---

<sup>1</sup>Charles F. Schuller, The School Administrator and His Audio-Visual Program (Washington: The National Education Association, 1954), p. 36.

acquisition of Audio-Visual materials.

The clerical and secretarial section should undertake such jobs as typing and duplicating materials, preparing correspondence, keeping records, and other such duties that are consistent with the operation of the center.

The engineering and technical staff should be responsible for installing, maintaining, and operating all audio and video intercommunication equipment in connection with the television broadcasts. They should also assist the production staff in technical matters.

The production staff should coordinate and supervise all the elements of production for on-the-air telecasts, including planning and designing studio setting and background and operating lighting equipment. The staff would also undertake outdoor filming away from the studio. They would be responsible for the production of such other Audio-Visual materials for school use as recordings, filmstrips, and films.

The staff of talent would work in close cooperation with the production staff. The first type of talent would be teachers who would undertake to teach different courses via the television. They must be potential candidates with a sound background in the academic area or specialty involved, must have a record of effective work in the classroom, and must be able to plan creatively and imaginatively within the time limit. The selection of teachers to take

on instructional television responsibilities should be made from those already in the teaching profession. They should, however, be given additional training before making television appearances. Other type of talent staff would include those with special abilities to act and portray different roles for the purpose of enlightening pupils and adding enrichment and variety to the curriculum.

The local resources must not be overlooked as a source for talent and special feature programs. Local personalities would include doctors, lawyers, engineers, health officers, law enforcement officers, agricultural specialists, industrial and civic leaders, and many others. These people would probably be willing to take part in programs dealing with their special fields. Other resources that could be used in the program include museums, industrial sites, geographic phenomena, locations of historical significance, and annual and special community events. Field trips to local points of interest are usually limited by the length of the school day and the accommodating facilities at such sites for groups of pupils at any one time. With television, however, pupils can see and hear these scenes right in the classroom through live presentations or through filmed or taped sequences. In this way, local talents and places of interest could be brought into the classroom with a minimum of difficulty.

### Selection and Purchase of Materials and Equipment.

The Educational Communications Media Center should assist schools in the selection and purchase of materials and equipment. This is somewhat hypothetical since public schools do not have an individual spending budget but services are provided by government through the Department of Education. However, individual schools might be able to sell the cause of education to the community and thereby be able to raise from voluntary contributions money to provide additional Audio-Visual materials and equipment to the schools.

Since most high schools are private and have their own budget supplemented in certain cases by government aid, they might be interested in setting up small Audio-Visual units and in obtaining advice on the selection and purchase of materials and equipment.

### Cataloging, Storage and Distribution of Materials.

All materials--recordings, films, filmstrips--should be stored in the library of the Educational Communications Media Center. These materials should be cataloged for filing and an alphabetical and subject-area listing should be made available.

With a small library of just probably single copies, materials should be distributed electronically via television or radio broadcasts. As the idea of Audio-Visual materials

takes root and as their values are seen, perhaps schools would be able to obtain equipment with which to use these materials in the school. Schools can then order materials for use in their premises and at their own convenience. These materials could be sent through the mail to the schools and returned to the center the same way on a free or no charge basis.

Production of Materials Locally. Plans should be made for the local production of materials. At the beginning these should be simple types of materials, but later more complex materials might be prepared as the staff develops greater skills in production. These should include tape and disc recordings, filmstrips and slides, and motion pictures.

Training of Personnel. Special types of personnel could be sent abroad for training. The government of British Guiana could probably be able to obtain scholarship or fellowship aids for the training of these personnel. Unesco has administered such aids, as has the United States Agency for International Development. The Institute of International Education in New York also handles scholarship aids made available by American universities to foreign students. Different philanthropic organizations in the United States of America also make available fellowship aids.



After those selected to receive training abroad return to British Guiana they can in turn train others locally.

Personnel should be trained to undertake such jobs as administration, production, maintenance and repairs, distribution, and cataloging and storing of Audio-Visual materials.

Pre-service and In-service Education for Teachers.

This is intended to refer to such training in connection with the use of Audio-Visual materials. The over-all program of teacher education has, however, been considered for special reasons. British Guiana does not provide professional training in education and educational psychology for teachers before they enter the profession. In-service training is available only on a limited scale.

In-service training covering the general field of teacher education and not just Audio-Visual methods and techniques should be made available on a wider scale. This could be successfully undertaken if the proposed Newer Educational Communications Media program utilizing television is adopted. Since this is an urgent problem then something should be done as soon as possible. First of all, it must be understood that it is physically and economically impossible for all the untrained teachers to attend the only teacher training college in the colony. There is not enough

trained personnel in the colony to conduct such courses at different locations throughout the colony for the benefit of teachers. The only feasible alternative seems to be the mass communication media through some Audio-Visual mean, and in this case it should be the radio. Schools have been equipped with radio receivers and teachers would merely need to meet in their respective schools to listen to the program and discuss it afterwards. Only a small group of qualified instructors would be needed to conduct the course over the air. It might be argued that this is not as effective a mean as actual classroom teaching, but it would be a vast improvement over the existing situation. It would also be more economical than individual classroom instruction. It might prove effective too, because it would be possible to employ expert instructors to conduct the courses whereas in the traditional classroom teaching it would not be possible to provide these experts for each classroom group. In this way, through the radio, expert instruction would be made available to all the teachers throughout the colony. Possibly, the commercial radio stations would be willing to contribute the time or the government could purchase the needed time. The program could be broadcast at 3:10 p.m, at which time regular instructional classes would be over. The broadcast could be of a half hour duration for the five school days a week or as could be decided upon. The program

could be tape-recorded, thus leaving the instructor free at the actual time of the broadcast to visit with different listening groups. This would give him an opportunity to meet some of his students and to understand better their problems and difficulties through their questions. Teachers could, from time to time, send questions to the instructor. These would help him to plan his lectures in order to deal with some of these questions. Perhaps these lectures could be supplemented by a correspondence course. Other countries have successfully used the combined radio and correspondence course for regular instruction. Many students in British Guiana have successfully completed certain parts of their education through correspondence courses only. The combined radio and correspondence course should be much more effective.

The proposed program advocating the use of television would be a much more effective means of instruction than radio. Television combines picture with sound, thus enabling the viewer to utilize both his eyes and ears. Actual classroom methods and techniques could be televised and used as examples. Instructional films on education and psychology could also reach the teachers via television. A course on Audio-Visual instruction for teachers has been conducted on television by the University of Wisconsin. This course is available on kinescope recordings and British Guiana could

probably obtain it free of charge.

With the implementation of large scale Audio-Visual services, teachers would require additional training in learning about the different types of materials available and how to evaluate and utilize these effectively. They probably would be interested in learning to operate certain equipment and also to produce certain types of materials. The Educational Communications Media Department should undertake to provide this type of training. Part of it could be incorporated into the general training program. The other part could include regularly scheduled seminar and workshop sessions and could also include a short term residency course for selected teachers at the Educational Communications Media Center. These should return to their respective schools and share their knowledge with other teachers.

The Proposed Program of Dissemination Utilizing Television. It is recommended that the proposed newer educational communications media program for British Guiana be a reversal to that of other countries in development. In the field of newer educational communications media most countries have started with radio, films, slides, and recordings and finally ended with television. The present trend, especially in the United States of America, is to use television facilities. Such facilities merit consideration because of their effectiveness and over-all economy and

efficiency. British Guiana should first of all consider establishing television facilities and then build the rest of the communications media program around this medium. This would also include Audio-Visual materials and equipment other than the so-called newer educational communications media.

An Educational Communications Media Center should be erected to house all Audio-Visual materials and equipment provided for educational purposes. This center should provide studio and other facilities for television broadcasting.

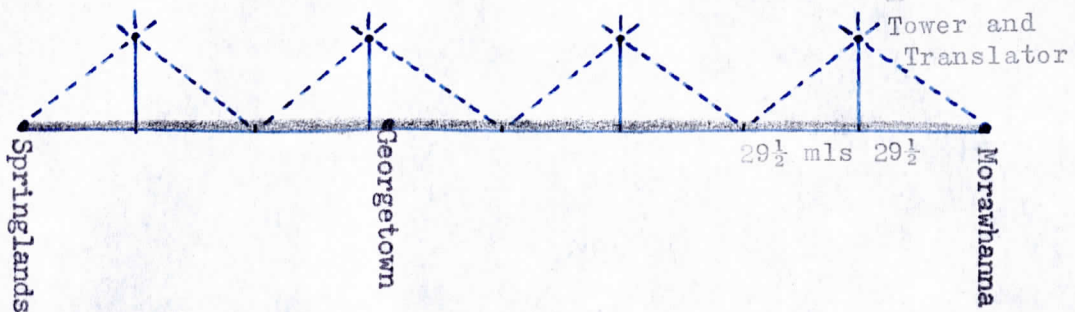
The broadcasting programs should be prepared for public schools (primary schools), secondary or high schools, teacher education, and adult education.

Broadcasting should be done from the studio in the Educational Communications Media Center and relayed, by means of four translators<sup>2</sup> each mounted on a 500 foot

---

<sup>2</sup>This is an automatic transmitter which enables distant communities to enjoy television picture reception equal in quality to that seen by viewers near the main station. Each translator receives signals from one originating station and converts or "translates" them for rebroadcasting. The translator-transmitting antennas beam strong, clear signals over the entire coverage area. The main station's signal turns the translator on and off automatically, eliminating the need for an operator at the site. With the addition of an aural-visual driver which accepts the audio and video signals from a studio, a translator can be used for transmitting directly from the studio.

tower, to cover the entire coast-line. Each translator on the 500-foot tower will cover a radius of approximately  $29\frac{1}{2}$  miles. The four units arranged thus



would cover the distance from Springlands to Morawhanna, which is approximately 236 miles. Over ninety per cent of the country's population is found on this 236 miles coastal strip which varies in width from ten to twenty miles.

#### Cost Factor.

1. Studio equipment cost approximately .....	\$10,000
2. The film chain costs approximately .....	4,000
3. The translator equipment and accessories vary from \$10,000 to \$15,000 each--average .....	48,000
4. Cost for four 500-foot towers at \$10. a ft.....	<u>20,000</u>
	<u>82,000</u>

Two videotape recorders will be needed and these should be added at the beginning or a little later. The studio could function without these but they are necessary for recording programs and broadcasts for use and re-use later. The

Machtron model is available at \$10,300.

Television monitor sets with accessories for the studio cost approximately \$200. each.

The cost quoted for American produced equipment as supplied by American producers is in United States currency. The cost, however, varies from producer to producer and also in regard to the quality of components. Additional costs to be considered in the program should include building or housing facilities, installation, setting up of a film and other materials library, regular operating cost plus salary for personnel. Television receivers for schools should also be considered.

Building Facilities. The Educational Communications Media Center should have facilities for the following: at least two studios (broadcasting), control room, film chain room, film, storage, and repair room, preview and pre-auditioning space, recording studio, photographic laboratory and workroom, storage space for Audio-Visual materials and equipment, maintenance and repairs space, production room, professional library and conference room, administrative and clerical offices, and reception and display area.

Distribution System. Materials and programs would be distributed electronically via television to classrooms. The distribution would cover the following categories:

1. "Live" television materials from the studio. This would

include the teaching of different parts of the curriculum by teachers from the studio.

2. 16 mm. films and kinescope<sup>3</sup> recordings.
3. Slides and filmstrips.
4. Videotape<sup>4</sup> recordings.
5. Facsimile materials.

---

<sup>3</sup>This type of recording is made by a kinescope recorder which makes a motion picture by using a special type of camera to photograph the television images as they appear on the face of a high-definition monitor tube or kinescope. This process is actually a motion picture recording of the television program. After the film is developed it can be shown in a classroom by a regular motion picture projector or at some later date over the regular television facilities.

<sup>4</sup>This is a recording made by a videotape recorder. It is a device which records on a strip of magnetic tape the electrical signals which emerge from a television camera system, very much as the familiar audio tape recorder records on a narrow strip of magnetic tape the electrical signals which emerge from a microphone system. The machine will record both picture and sound as it is being picked up in the studio and immediately replay both picture and sound without a trace of visible deterioration. Like an audio tape, a television tape recording can be erased and a new recording placed on the same tape.



## CHAPTER VI

### SUMMARY AND CONCLUSIONS

Summary. The educational problems of British Guiana are similar to those of most other countries where there are overcrowded classrooms due to a rapidly increasing school population, insufficient and inadequately qualified teachers, and in some cases where illiteracy is somewhat high. There is also the problem of providing a more enriched curriculum for pupils.

The traditional classroom teaching by the teacher does not seem to provide the answer to these problems. Most countries seem unable to provide adequate classroom facilities and to keep the teacher-student ratio small. It is, however, still the concern of different countries to provide the necessary public education for their school age population and also, at the same time, to do something about adult education in order to reduce existing illiteracy. In trying to do this, industrialized countries are turning more and more to newer educational communications media. Among these media are the record player, tape-recorder, slide projector, filmstrip projector, movie projector, radio and television. Even the less technically developed countries have been following the same example in adopting newer educational communications media mostly through foreign help.

The United States of America is quite prominent in the field of newer educational communications media where a vast amount of research and numerous experiments have been undertaken and more are underway. Many of the findings and recommendations have been put into effect resulting in greater emphasis on newer educational communications media. Different types of Audio-Visual materials and equipments are now available in public schools, colleges, and universities, and teachers are being trained to utilize these. The use of educational films is increasing and teaching by television is getting to be quite common in most states and in many colleges and universities. This emphasis on newer educational communications media in the United States of America has the financial backing of both the Federal and the state governments. Civic organizations and philanthropic foundations have also given substantial financial backing to different projects. The producers of different equipment and materials are doing their share for the cause of education by providing schools with equipment at special reduced prices.

Other countries are also turning to newer educational communications media for the answer to some of their existing educational problems. In many instances this has been done on a national scale with the backing of the national government. Notable among these are England, India, and

Japan. Canada, France, Germany, and Russia have been making steady progress with these newer media. Italy is gaining prominence in its use of television on a national scale to eliminate illiteracy and also providing more education to its citizens. Even the technically underdeveloped countries are awakened to the values of the newer educational communications media. In many instances, because they have been unable to provide these media on their own, they have received technical and financial support from the United States of America through its Agency for International Development program and also from Unesco. Many Asian, Latin American, and African countries have benefited from the United States of America and Unesco's endeavor.

The different types of newer educational communications media have been found useful for mass communication, classroom groups, and individual learning.

The recommendations and proposed program of implementing educational television facilities in British Guiana are intended to provide a feasible solution to British Guiana's educational problems.

Conclusions. Research, experiments, and experience of experts have concluded that newer educational communications media are definitely making substantial contributions to education. They are both tools for teaching and avenues for learning. They provide the teacher with a rich variety of

instructional materials. They convey information and facts in a manner that is interesting to the student and motivates him to increase his learning. They provide the solution to the present demand for higher-level education with a greater concern for "excellence" or "quality."

The trends in most countries seem to be in implementing newer educational communications media on a larger scale. Even the underdeveloped countries are moving in this direction also.

In view of the existing educational problems in British Guiana, there is a definite need for newer educational communications media. British Guiana can do well to follow the example of other countries and utilize these media because of their educational values.

The Ministry of Education in British Guiana, having implemented Radio Broadcasts to Schools seven years ago, should continue in like manner and adopt the proposed program for introducing television into instruction. Television is superior to radio as a medium of communication and in many respects ranks as good as the teacher.

In order for any program to function successfully, there must be properly trained personnel and an adequate budget.

In implementing such a program on a national scale, the cooperation of government, teachers, pupils, and the public would be necessary.

A national program as such should not be difficult to introduce into the educational system because of the centralized system of administration that exists in education.

Other types of equipment and materials mentioned in this study are intended not only for information purposes but also to show the extent of the field of newer educational communications media. They could also be introduced into the educational system as seen fit and as funds become available.

BIBLIOGRAPHY

## BIBLIOGRAPHICAL ENTRIES

### A. Books

- Adkins, Edwin F. (ed.). Television in Teacher Education. Washington: The American Association of Colleges for Teacher Education, 1960.
- Cassirer, Henry R. Television Teaching Today. Paris: Unesco, 1960.
- Colonial Report of British Guiana. London: Her Majesty Stationery Office, 1960.
- Costello, Lawrence F. and George N. Gordon. Teach with Television. New York: Communication Arts Books, 1961.
- Dale, Edgar. Audio-Visual Methods in Teaching. Revised edition. New York: Holt, Rinehart and Winston, 1961.
- Dent, Ellsworth C. The Audio-Visual Handbook. Chicago: The Society for Visual Education, 1950.
- Erickson, Carlton W. H. Administering Audio-Visual Services. New York: The Macmillan Company, 1959.
- Fine, Benjamin. Teaching Machines. New York: Sterling Publishing Company, Inc., 1962.
- Freedman, Florence B. and Esther L. Berg. Classroom Teacher's Guide to Audio-Visual Material. Philadelphia: Chilton Company, 1961.
- Harcleroad, Fred and William Allen. (ed.). Audio-Visual Administration. Dubuque, Iowa: William C. Brown Company, 1951.
- Hilgard, Ernest. Theories of Learning. New York: Appleton-Century-Crofts, 1956.
- Kinder, James S. Audio-Visual Materials and Techniques. Second edition. New York: American Book Company, 1959.
- Levenson, William B. and Edward Stasheff. Teaching Through Radio and Television. New York: Rinehart and Company, Inc., 1952.
- Lewis, Philip. Educational Television Guidebook. New York: Mc Graw-Hill Book Company, Inc., 1961.

- May, Mark. A. and Arthur A. Lumsdaine. Learning from Films.  
New Haven: Yale University Press, 1958.
- Schramm, Wilbur (ed.). The Impact of Educational Television.  
Urbana: University of Illinois Press, 1960.
- Schuller, Charles F. (ed.). The School Administrator and  
His Audio-Visual Program. Washington: National  
Education Association, 1954.
- Wittich, Walter A. and Charles F. Schuller. Audio-Visual  
Materials. Third edition. New York: Harper and  
Brothers Publishers, 1962.
- World Survey of Education II. Paris: Unesco, 1958.
- World Survey of Education III. New York: International  
Documents Service, Columbia University Press, 1961.

#### B. Booklets and Pamphlets

- Audio-Visual Education--A Manual for Administrators.  
Raleigh, N. C.: State Department of Public  
Instruction, 1962.
- Campion, Lee E. and Yvonne Lanagan (ed.). And TV, Too.  
Washington: National Education Association, 1961.
- Current Developments in Educational Television. Washington:  
National Educational Television and Radio Center, 1961.
- Edling, Jack V. (ed.). The New Media in Education.  
Sacramento: Sacramento State College, 1960.
- Fact Sheets on the U. K. Dependencies--British Guiana.  
New York: British Information Services, 1961.
- Hauch, Charles C. Educational Trends in the Caribbean.  
Washington: U. S. Department of Health, Education,  
and Welfare, 1960.
- The Multiplier. Washington: Agency for International  
Development, September, 1959; January, 1963.
- Statistical Handbook of Japan. Tokyo: The Ministry of  
Foreign Affairs of Japan, 1961.



Teaching by Closed-Circuit Television. Washington: American Council on Education, 1956.

Television in Instruction. Washington: National Education Association, 1958.

The Japan of Today. Tokyo: The Ministry of Foreign Affairs of Japan, 1962.

Wendt, Paul R. Audio-Visual Instruction. Washington: National Education Association, 1957.

### C. Periodicals

Allman, Heyman B. "America Aids Education in Pakistan," Phi Delta Kappan, 39:130-132, December, 1957.

Athalye, G. K. and Francis W. Noel. "India Takes a Giant Stride," Audiovisual Instruction, 5:104-106, April, 1960.

Bair, George E. "ETV in South Carolina," Audiovisual Instruction, 7:696-699, December, 1962.

Barron, J. Roy. "Flexible Design for Language Labs," Educational Screen and Audio-Visual Guide, 40:175, April, 1961.

Brown, James and John A. Moldstad. "Administration of Instructional Materials," Review of Educational Research, 32:194-209, April, 1962.

Davison, W. Phillips. "Modern Mass Communication," The National Elementary-Principal, 39:40-43, May, 1960.

Desberg, Dan. "Automaticity: Language Learning Goal," Educational Screen and Audio-Visual Guide, 40:172-174, April, 1961.

Freedman, Florence. "Israel, Giant Laboratory," Educational Screen and Audio-Visual Guide, 38:124-125 and 136, March, 1959.

"Federal Aid for Educational Television," School Life, 44:30-33, June, 1962.

Harclerod, Fred. "Theoretical Foundations in Audio-Visual Communications," Review of Educational Research, 32:119-124, April, 1962.

- Herts, Coleman H. "An In-Service Audio-Visual Workshop," Educational Screen and Audio-Visual Guide, 40:179, April, 1961.
- Hodes, Estelle W. "How Audio-Visual Aids Make Teaching and Learning Easier," Educational Screen and Audio-Visual Guide, 39:644-645, December, 1960.
- Kidd, J. Roby. "Mass Media in Canada," Adult Education, 25:123-126, March, 1953.
- Lumsdaine, A. A. "Unesco Educational Media Conference Recommendations," Audio-Visual Communication Review, 10:338-342, November, 1962.
- Miner, Robert A. "The Videotape Recorder," Educational Screen and Audio-Visual Guide, 38:531-532, October, 1959.
- Moldstad, John. "Doctoral Dissertations in Audiovisual Education," Audio-Visual Communication Review, 4:291-333, Fall, 1956; 6:33-48, Winter, 1958; 9:220-229, July, 1961.
- O'Connor, Alwyn. "A Statement of Philosophy and Purposes of an Audio-Visual Department," Educational Screen and Audio-Visual Guide, 40:488-489, September, 1961.
- Polishuk, Charlotte B. "Audio-Visual Aids and How they Grew," The Grade Teacher, 70:50, February, 1953.
- "Recommendations for Educational Television," Education Digest, 40:18-21, October, 1962.
- Sherman, Mendel. "MPATI's Promise, A Summing Up," Phi Delta Kappan, 43:326-330, May, 1962.
- Sochor, Eugene. "Unesco's Role in Education," School and Society, 89:433-435, December 16, 1961.
- Stone, C. W. "Some New Frontiers for Newer Media," Audio-Visual Communication Review, 9:163-172, July, 1961.
- Tyler, I. Keith. "Television Frees the Teacher," Educational Research Bulletin, 39:169-178, October 12, 1960.
- Vesselo, Arthur. "The European Approach to Audiovisual Research," Audio-Visual Communication Review, 8:143-149, March, 1960.
- Wagner, Robert W. "Look and Listen: There is no Substitute," Audio-Visual Communication Review, 10:119-123, March, 1962.

Williams, Don G. "AV in Iran," Educational Screen and Audio-Visual Guide, 38:12-15, January, 1959.

Wittich, Walter A. "The AV/TV Course," Audio-Visual Instruction, 6:54-57, February, 1961.

#### D. Encyclopedia and Yearbook Articles

Allen, William H. "Audio-Visual Communication," Encyclopedia of Educational Research. New York: The Macmillan Company, 1960. Pp. 115-137.

Bohlen, Adolf. "The History and Theory of Mass Media in Germany," The Year Book of Education. New York: World Book Company, 1960. Pp. 377-393.

Brish, William M. "Closed Circuit Television for Science--U. S. A.," The Year Book of Education. New York: World Book Company, 1960. Pp. 216-221.

"British Guiana," Encyclopaedia Britannica (28th ed.), X, 957.

Bull, G. R. "Symposium on Mass Media in Australia--Sound Radio," The Year Book of Education. New York: World Book Company, 1960. Pp. 314-317.

Coppen, Helen. "Symposium on Mass Media in the United Kingdom," The Year Book of Education. New York: World Book Company, 1960. Pp. 294.

De Jong, H. "Unesco's Programme for Audio-Visual Media in Schools," The Year Book of Education. New York: World Book Company, 1960. Pp. 566-569.

Gelmont, A. M. "Moving Films in Soviet Schools," The Year Book of Education. New York: World Book Company, 1960. Pp. 428-445.

"Guiana," Encyclopaedia Britannica (28th ed.), X, 956.

Harrison, J. A. "Symposium on Mass Media in the United Kingdom--Films and Filmstrips," The Year Book of Education. New York: World Book Company, 1960. Pp. 294-299.

Hatano, Kanji. "Mass Media and Education in Japan," The Year Book of Education. New York: World Book Company, 1960. Pp. 446-447.

- Kumar, Narendra. "The Use of Radio in Education in India," The Year Book of Education. New York: World Book Company, 1960. Pp. 529-535.
- Kumata, Kideya and Malcolm S. Maclean, Jr. "Education and the Problems of the New Media in the U. S. A.," The Year Book of Education. New York: World Book Company, 1960. Pp. 276-291.
- Lee, Bernard C. "The Technical Correspondence School of New Zealand Department of Education," The Year Book of Education. New York: World Book Company, 1960. Pp. 511-516.
- Lefranc, Robert. "The Organization and Use of New Media in French Education," The Year Book of Education. New York: World Book Company, 1960. Pp. 361-376.
- Moos, Homai Jal and E. A. Pires. "Mass Media of Communication in the Schools of India," The Year Book of Education. New York: World Book Company, 1960. Pp. 330-345.
- Norberg, Kenneth D. "Growth in the Use of Mass Media in American Education," The Year Book of Education. New York: World Book Company, 1960. Pp. 269-275.
- Perry, E. "Symposium on Mass Media in Australia--Filmstrips," The Year Book of Education. New York: World Book Company, 1960. Pp. 317-322.
- Russel, Claude V. "The Effects of Television on Textbooks," The Year Book of Education. New York: World Book Company, 1960. Pp. 105-111.
- Sloane, T. R. M. "Symposium on Mass Media in Australia--Moving Film," The Year Book of Education. New York: World Book Company, 1960. Pp. 322-325.
- Steele, R. C. "Symposium on Mass Media in the United Kingdom--School Broadcasting in Sound and Television," The Year Book of Education. New York: World Book Company, 1960. Pp. 304-310.
- Volpicelli, Luigi. "Experiments in the Use of Mass Media in Italy," The Year Book of Education. New York: World Book Company, 1960. Pp. 394-406.
- Webb, John D. "The Development of Film and Filmstrips Use in Canadian Schools," The Year Book of Education. New York: World Book Company, 1960. Pp. 503-510.

## E. Mimeograph Materials

Annual Report of the Director of Education, British Guiana.  
Georgetown, British Guiana: Department of Education,  
1960.

APPENDIX

CONTENTS

ERRATA



MAP OF BRITISH GUIANA

