Principles Involved in the Implementation of an Effective Programme of Audio-Visual Aids in Schools.
CHAPTER VI
Principles Involved in the Implementation of an Effective Programme of Audio-visual Aids in Schools.

Before concluding the study it will be worthwhile to mention some of the principles in connection with the utilization of audio-visual aids in the secondary schools in Thailand. The understanding gained by these principles will act as a guide line leading to the proper solution of the problems existing in Thailand. The observations made below are designed to cover as far as possible various aspects of the problem that need solution. These are:

(a) The preparation of teachers for the use of audio-visual aids.
(b) Audio-visual service management in the schools.
(c) The facilities for the use of audio-visual aids in the classroom.

In the first item, may be included the needed knowledge, skills and ability of the teachers in audio-visual aids, the way to prepare them, and the way to improve the in-service training programme in audio-visual field.

The second may include methods of establishing the audio-visual service in individual schools, the provision of audio-visual materials,
equipment, and facilities, the production of some audio-visual materials by the teachers and students, the financial aspect of the audio-visual service, and the duty of different personnel in the school audio-visual service programme.

In the third category, the external conditions of the classroom and the facilities needed for the proper use of audio-visual aids in the classroom together with suggestions regarding the improvement of classroom conditions so as to provide suitable conditions for their utilization will be attempted.

(I) Teacher education for the use of audio-visual aids.

One of the important factors that helps in the understanding and the ability of teachers in the utilization of audio-visual aids in the teaching process is teacher-education. It is suggested that, "Pre-service and in-service education in the field of audio-visual education must be provided for teachers, superintendents, principals, supervisors, audio-visual education personnel, and college and university faculties".

The value of any audio-visual aid programme is determined by the skills and purpose with which it is used. Probably the most important method that helps the development of skills in using new teaching aids

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in by individual experimentation by the creative teacher who welcomes up-to-date audio-visual aids that meet the needs and interest of his children. Creativity in the use of any teaching device depends upon a flexible curriculum, an experimental philosophy of education, and an administration which encourage teachers to pioneer in new fields.¹

The pre-service training of the teachers is the responsibility of the teacher-training institutions. Each prospective teacher must learn how to use various types of audio-visual aids and should understand how to incorporate the audio-visual materials into the teaching procedure.

Though the pre-service training must be left to the colleges and universities, most of the in-service training must be conducted by the schools or by the local centres of education for teachers or the local audio-visual centres. The importance of audio-visual aids should be brought home to the teachers who are already employed and their knowledge in the area should be kept up-to-date. Most in-service training programmes in audio-visual education are designed to utilize the leadership of the state department of education and of teacher training institutes. This is due to the fact that much of the professional leadership is concentrated at these two levels.

The following is the most difficult problems faced by beginning teachers and reported by them when they use audio-visual materials:

- guidance in maintaining discipline.
- help in knowing children, their individual and group needs.
- training in how the teaching-learning situation may be made more effective.
- guidance in locating materials of instruction
- guidance in working with other adults.

All these needs can be met by giving education in audio-visual field to the teachers, both during pre-service and in-service training. Instructional materials are the tools by which the teachers can meet the needs of individuals and groups of students by their wise use, and certainly they will make the learning more efficient. The teachers must be competent in the utilization of such materials. A lack of such competence in both the school administrators and the teachers will be an obstacle in the growth of audio-visual teaching.

The pre-service training is given to all prospective teachers in the teacher-training institutions. Among a great many of those who are engaged in the training of teachers in audio-visual methods, there is a general agreement on one very important opinion, their task would be greatly simplified if the well-planned, well-executed use of audio-visual materials

1. "These are Our Concerns", Educational Leadership, 5(December, 1947), pp.145-54
The characteristic of the whole teaching programme. Thus, one very important aspect of the pre-service training of teachers in the audio-visual field is the in-service training of the college staff itself. They should represent the highest development of classroom skills and are acquainted with every new materials and methods because their practices will be reflected in the teaching done by the student-teachers.

Many teacher trainers, in the opinion on the need for, and emphasis on, specific training in audio-visual practices agree that there would be no need for course work in the field if the student-teachers were accustomed to participating in classes where varied materials and techniques were brought into play to meet the constantly changing learning situation. The teacher-students must be given an opportunity to become skilled in the use of newer communication tools.

The ultimate aim in audio-visual education is that adequate materials shall be properly employed to make learning more effective. So the teachers must have adequate professional preparation in general teaching procedures. In addition, skills and understandings, concerning the selection, utilization, production, and administration are required.

The proper selection of materials requires a knowledge of: (a) sources, methods of securing, and methods of evaluating materials; (b) the relation

of materials to the curriculum and to the method; (c) successful use of
the potentialities of the various audio-visual media; and (d) the different
materials available, especially in the field of the teacher's interest.

The proper utilization of materials requires, in addition to some
items listed above, knowledge and skills, related to: (a) optimum
conditions for the presentation of materials; (b) the operation and routine
maintenance of different types of equipment; (c) the psychology of learning
and the philosophical concepts underlying the use of audio-visual materials;
(d) the use of the proper audio-visual materials at the proper time, and;
(e) techniques of communication through media other than print and oral
language.

With respect to administration, the teachers should know: (a) the
more common practices in the administration of audio-visual materials; (b) the
commonly accepted role of the audio-visual director with respect to the
curriculum; and (c) the factors of organization which facilitate the
selection, use, and production of needed materials.

In the field of production, firstly the teacher should be able to
produce simple and inexpensive materials, such as slides, charts, graphs,
models, exhibits, collections, recordings, dioramas, and display, etc.

The first aim of the training of prospective teachers in this field
is to require teachers to be well qualified in audio-visual practices. The
content of the courses in audio-visual education must be well adapted to the needs of the teachers. One rather consistent characteristic of audio-visual courses has been the inclusion of numerous laboratory experiences. Thus, audio-visual courses have to be designed to encompass newer materials and techniques and, at the same time, have to give specific training in better use of many older ones. De Kieffer reported that following distribution of units or topics taught in the teacher-training colleges, which can be used as our guide-line:

1. Utilization of materials.
2. Selection of materials.
3. Operation of equipment.
4. Evaluation of materials.
5. History and philosophy of audio-visual education.
6. Administration of audio-visual programme.
7. Production of non-photographic aids.
8. Production of photographic aids.
9. Radio-script writing, transcriptions, and recordings.
10. Other types of production.
11. Other items.

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The enumeration of such requirements made by a California Committee
of Educators should also be taken into consideration. They are:

(a) Knowledge and understanding:

(b) Results of research studies, past and present, in the field and
their implication for instruction.

(c) Types of audio-visual materials available in the specific area
of the teacher's interest and their potential educational worth and uses.

(d) Sources of materials and equipment - local, national and
international.

(e) Nature of the common types of audio-visual materials and equipment,
including the educational values and limitations of each.

(f) Methods of procuring, storing, filing, and maintaining the
various kinds of materials and equipment.

(g) Principles of good teaching that affect the selection and use of
these materials.

(h) Processes involved in the production of some of the simpler
materials, such as mounted prints, handmade slides, filmstrips, and
photographs.

(i) Services of an audio-visual education department and its personnel,
the best way of using that service, and the teachers' responsibility for
co-operating with the department.
(j) Principles and procedures for setting up audio-visual education service in a single school or in a school district.

(k) Background and development of audio-visual education that have a relation to current trends and practices in the field.

(2) Skills and abilities:

(a) To appraise the educational worth, technical quality, photographic characteristics, and commercial aspects of audio-visual materials.

(b) To select audio-visual materials to meet the pupils' needs and the purpose of instruction.

(c) To use each audio-visual tool effectively in classroom situation.

(d) To evaluate the effectiveness of the use of these materials in teaching situations and to modify and improve future instructional practices on the basis of such evaluation.

(e) To assemble and operate various kinds of equipment and to perform simple servicing operation such as lubrication and the placement of lamps.

(f) To provide and arrange the best physical conditions possible for using these materials.

(g) To plan and successfully execute a fieldtrip or excursion.
(h) To produce simple materials such as mounted prints, slides, posters, charts, graphs, models, collections of natural science materials, and to prepare exhibits and displays.

(i) To display materials effectively on the bulletin board, in the classroom, and in other appropriate locations.¹

From the above it can be concluded that the audio-visual education for teachers needs:

(1) Present introductory courses emphasize selection, use, and evaluation of materials. Practice in handling materials and equipment is stressed. Considerable attention is given to the history and philosophy of audio-visual education and an account of the administrative aspects of the programme.

(2) Production of materials of all kinds.

In the in-service training of teachers there are many factors that contribute to a successful programme. They are:

1. Providing effective leadership. An effective leader is one who knows how to obtain and develop co-operation, who recognizes the various roles which must be assumed in a group.

¹ "Developing Standards of Teachers Competency in Audio-Visual Education", California Schools, 18 (Jan., 1947), pp.5-6. (A report prepared in co-operation with the American Council on Education's Committee on Content in Audio-visual Education)
2. The effort to fit the programme to the needs of the teachers.

Most teachers have problems on which they need help. It is the responsibility of those directing the in-service programme to get at the real needs of the teachers.

3. Proceed slowly. The acquisition of a new skill, idea, or concept is not a rapid process. Endeavouring to cover a set amount of ground in a limited time may not lead to maximum teacher understanding and skills. This is especially true when developing skills in the operation of equipment. Sufficient time should be allowed for necessary practice.

4. Provide for group planning. The audio-visual area offers many opportunities for teacher participation at every stage of the activity. Previews, fieldtrips, committee reports, and scheduling of equipment are aspects of an audio-visual programme in which those participating can help plan the work for the group.

5. Keep size of group small. If groups are too large, it is difficult to break down the reserve of the individuals. Large groups have a tendency to make the learning environment more formal so that many teachers are reluctant to express themselves. And also, the finding of sufficient opportunity on the use of the equipment becomes a problem. The maximum number of teachers for effective group work in audio-visual aids seems to be about twenty.
6. **Providing adequate time.** Adequate time should be provided in the daily or weekly programme for in-service training. Some of the plans tried by various schools to provide more time are: early dismissal of children one day a week, Saturday-morning meetings once a month, one week previous to the beginning of the term, or the week immediately following the ends of the term.

7. **Supplying adequate materials and equipment.** All types of equipment and a large variety of materials should be available to meet the needs of individuals. A review room and laboratory are also needed. The audio-visual library should include books, periodicals, and pamphlets in sufficient number to meet the requirements of the group.

There are many methods and techniques in providing the in-service training for the use of audio-visual aids. There are:

1) **Extension course.** Since colleges and universities now accept the responsibility for teacher education beyond the formal training, many institutions are providing opportunity for continued college work "off campus." Teachers get needed experience in the use of the newer instructional aids through this type of training.

The following programme offered by the University of Connecticut can be a good example of the topics covered in the typical audio-visual extension course:
First meeting - Description of the course. The great movement for audio-visual aids in education.

Second meeting - The role of audio-visual aids in the setting of learning.

Third meeting - The school journey.

Fourth meeting - Museum materials and museum.

Fifth-sixth meeting - The motion picture.

Seventh meeting - Standard, hand-made, and 2" x 2" slides.

Eighth meeting - Filmstrips, opaque projection, and flat picture.

Ninth meeting - Radio in education.

Tenth meeting - Recording and Dramatization.

Eleventh meeting - Graphics.

Twelfth meeting - Teacher competence in the utilization of audio-visual aids.

Thirteenth meeting - Administration and supervision of audio-visual aids.

The role of the teacher in developing centralized audio-visual aids service.

Fourteenth meeting - Physical aspects of audio-visual aids utilization.

Fifteenth meeting - Final examination.¹

A different plan has been used by the Oregon State system of higher education. This plan combines the feature of the conferences with laboratory

and individual-project method. A one-day institute is held when the schools are not in session. Specialists, teachers, administrators, and commercial representatives are first asked to present an over view of the entire field of audio-visual materials. Demonstration of various types of materials and equipment are given through the day. Provision is also made for teachers to meet later in small discussion groups to consider specific types of aids.

A typical institute program is shown below:

8.30-8.45 Introductory remarks—objective of the course. (15 minutes)
8.45-9.05 The place of instructional aids in the learning process. (20 minutes)
9.05-9.35 Community resources as aids to learning. (30 minutes)
9.35-10.05 The bulletin board as an aid to learning. (30 minutes)
10.05-10.25 The chalkboard as an aid to learning.
12.30-12.30 Sectional meetings devoted to various types of aids. (2 hours)
12.30-1.30 Lunch.
1.30-2.30 Planning—key to success in use of audio-visual aids. (1 hour)
2.30-3.00 The place of motion pictures in learning. (30 minutes)
3.00-5.00 Sectional meetings (2 hours).

From this example of schedule, some topics can be changed to suit the present needs of the teachers. For instance, "The bulletin board as an aid to learning" may be changed into the topics suggesting some other new materials or equipment such as teaching machine etc.

1. Ibid., p.113
The one-day conference is followed by three evening-laboratory sessions. Here the participants can learn how to operate and use the various types of audio-visual equipment. Enough assistance are provided to give each teacher individual instruction. Each teacher selects two projects which are of primary concern to him. These projects are worked out on the job and are turned to the person in charge of the programme. The programme of the extension courses should be as flexible as possible and not to be regarded as subject matter course.

ii) Audio-visual Conferences and Institutes. One of the traditional methods to help teachers grow in service is by means of the conferences or institutes. One of the defects of the audio-visual conferences is that they are too general in nature and too verbal. Audio-visual conference should offer a good example of the best usage of the materials. The teachers will not develop much enthusiasm for the materials if all they have witnessed is verbalism. A good example of this approach is the Tacoma, Washington, Audio-visual Education Review (conference). The plan holds speech-making to a minimum and allow most of the time for critical observation of audio-visual aids in action. The schedule is so arranged that teachers can see different types of aids in use. The teacher, in the time allowed for the conference, could select any topic which appealed to him. A few are listed below to illustrate the variety:
- Graphic materials in economics.
- Opaque projector in physical education.
- Homemade equipment in science.
- The tape recorder in junior high school music.
- Miniature slides in junior high school social studies.
- The tape recorder in junior high school literature.
- Phonograph records in second grade spelling.
- Slidefilm in fifth-grade geography concepts.
- Motion pictures in kindergarten handwriting.
- Museum objects in a sixth-grade social studies unit on Mexico.
- Charts in intermediate music.

A conference of this kind has the advantage of allowing teachers to select from a large variety of topics those which suit their individual needs and interests. Most of the demonstrations were conducted by classroom teachers who are actually using the aids in their instructions. Teachers tend to be more receptive to new techniques when they hear one of their own group relate experiences to them. The discussion and demonstration should be based around actual classroom situations. Audio-visual methods should be used whenever possible.

(iii) The Professional Teachers' Meetings. One of the methods frequently used for stimulating a greater use of audio-visual aids is the teachers'

1. Ibid., p.115
meetings. The principals of the school have the responsibility of developing the teacher's interest in professional improvement. The use of new methods and techniques of audio-visual education will progress very little if the teaching staff has not been sufficiently motivated to investigate its possibilities. A great deal can be done in these faculty meetings to broaden the teachers' concepts of instructional materials and to encourage the use of new materials. However, if much of the time is consumed in announcements or lectures on topics of little interest, the teachers' enthusiasm for improvement of instruction may diminish.

Interest in the study of these aids can be encouraged in so many ways. When a new equipment has just come in the market, a demonstration will do much to create discussion about its value and limitations. Any discussion centered around the problems confronting teachers in the use of audio-visual materials and equipment in the classroom will create interest. An equipment clinic where teachers can learn to operate machines will create a great deal of thinking and experimentation. Preview and discussion of new materials have been successfully used in acquainting the teachers with the variety and usefulness of materials relating to different subjects.

An example of how a series of professional meeting might be devoted to the study of audio-visual aids is given below:
First meeting - General discussion of the programme of audio-visual aids and its implications for the school.

Second meeting - Audio-visual director from neighbouring school district to discuss audio-visual aids.

Third meeting - Committee report on local survey of audio-visual situation, selection of audio-visual co-ordinator.

Fourth meeting - Demonstration of audio-visual equipment and materials.

Fifth meeting - Committee report on audio-visual services in the local area; film libraries, equipment, etc.

Sixth meeting - Group planning and discussion on audio-visual aids to correlate with the curriculum. Committee appointed to investigate materials for various areas of curriculum.

Seventh meeting - Organized programme for school-appointed committee on audio-visual aids to set up long-range plan.

Eighth meeting - Plan programme of in-service training for teachers.

Ninth meeting - Selection of materials and equipment. Plans for the further meetings discussed.¹

(iv) The Audio-visual Workshop. The audio-visual workshop gives teachers an opportunity to work on individual problems; it provides for more individuals guidance; and it helps develop a better attitude toward audio-visual materials.

The essential requirements are:

1. A group of teachers who have specific problems on which they want help.

2. A capable leader to direct the workshop.

3. Enough resources (materials, equipment, consultants) to meet the individual and group needs.

4. An adequate work space.

The activities in the workshop are like these: members discuss their particular interests, persons with similar problems form committee if they so desire and each committee plans its own work schedule. Laboratory facilities for previews, production, and equipment were available. Daily bulletins keep the workshop personnel informed of each day's schedule. A great deal of cross pollination take place as various committees present their reports. The workshop technique in in-service training can create the better attitude which is developed toward the use of audio-visual materials and the teachers use these materials more after the workshop experience.

(v) Bulletins and Handbooks. One of the easiest way to help teachers in the use of audio-visual aids is to employ printed or mimeographed bulletins to provide informations and guidance to them in their work. If the use of these printed materials is not well-planned, the teachers will be overflooded with bulletins, handbooks, and leaflets from various administrative offices which will be confusing. If carefully planned, the distribution of printed materials can greatly contribute to the in-service education of teachers.
It depends upon eliminating unnecessary matter and concentrating on quality rather than quantity.

Printed bulletins and handbooks are effective in keeping teachers informed about new equipment and materials. Periodic, concise bulletins listing new aids are read and used by most teachers. Comprehensive handbook or catalogue which lists all the various aids available is also useful.

Some catalogues include suggestions on utilization and given instructions for ordering equipment and materials. They should be so organized that the teachers can easily find the type of materials needed. Periodic supplements should be issued to keep the catalogue up to date. Digest of research and recent developments in the field of audio-visual aids also are very useful.

Reporting good utilization practice and results of film previews makes interesting reading. Entire bulletins devoted to special topics have been used successfully. The list of titles for special issues is practically unlimited. To be effective they should be addressed to teacher's needs. These special bulletins should be printed in a form that is easily filed.

(vi) School Visitation. Firsthand observation of audio-visual tools being used in an actual teaching situation is a stimulating experience for teachers. Although it is difficult to set up rigid procedures to be followed in case of interschool visitation, getting one teacher to visit another for purpose of observing some specific techniques is so valuable. The exchange of ideas and discussion of problems on the use of audio-visual aids will be beneficial to both parties.
These examples deal with methods used in the in-service training of the teachers for the better use of audio-visual aids. However, without proper evaluation one cannot determine what progress has been made towards the goals or determine where the weakness of the programme lies. There must be a co-operative evaluation of the in-service training to focus the attention on the place where the improvement is needed and to point out features which have been successful.

The following list will serve as a guide for evaluating programmes of in-service training:

1. Do teachers have access to professional books and magazines on audio-visual aids?

2. Are audio-visual materials readily accessible to teachers?

3. Are teachers encouraged to use a variety of materials in their instruction?

4. Does the principal provide effective leadership in the use of audio-visual materials?

5. Do pupils look upon the use of motion pictures as a "movie show"?

6. Do teachers know how to operate the more common types of audio-visual equipment?

7. Do teachers know the main sources of audio-visual materials?

8. Do teachers participate in the selection of audio-visual aids and equipment?
9. Do teachers participate in the formulation of policy regarding audio-visual aids?

10. Does the administration provide adequate facilities for the use of audio-visual aids?

11. Are audio-visual materials integrated into the instructional process?

12. Are teachers encouraged to make inter- and intra-school visits?

13. Are teachers kept informed of developments in the audio-visual field?

14. Are material resource-centres being maintained in each school?

15. Is proper leadership being provided (director, co-ordinator etc.)?

16. Is there an exchange of ideas, practices, and techniques among the teachers?

17. Are facilities provided for the preparation of inexpensive materials?

18. Do teachers know what safety practices should be observed in handling equipment?

19. Do teachers recognize the values and limitations of audio-visual aids?

To the question concerning the frequency of the utilization of audio-visual aids in the classroom, what proportion of classroom time should be

1. Ibid., pp. 121-22
devoted to the use of audio-visual aids—there is no decisive answer to this question. Each individual teacher must make his own decision concerning the proportion of classroom time devoted to the use of audio-visual aids. He should take into consideration the needs, interests, the age and ability of his students, together with the subject-matter which will be taught. The amount of effective use of each type of audio-visual aid varies for various subjects and for the different grade levels. The teachers can consult the school administrators, the supervisors, and the director of the audio-visual centres about the desired frequency of use. These decisions are most important, because the frequency of use will determine the equipment, materials, financial support, and the staff assistance needed. Contrariwise, the frequency of use is limited by the availability of materials, equipment, financial support, and staff assistance in the school system.

One of the factors that affects the use of audio-visual aids more frequently by the teacher is the familiarity he has with audio-visual aids. The teacher's acquaintance with instructional materials depends upon the alert, intelligent, progressive utilization of possible sources of information and experiences. Supervisors and directors of audio-visual education should provide teachers the greatest possible amount of assistance through school planning, coordination, and universities, State Departments of Education, and other educational agencies who have the responsibility of increasing the effectiveness of the instructional programme should provide leadership, guidance, and assistance.
Sources of information which is helpful to teachers include professional bulletins in his own teaching field; specialised journals and indexes in the field of audio-visual aids, selected bibliographies of audio-visual materials prepared by professional groups, observation and visitation, personal experimentation in selection, utilization, and preparation of a wide variety of materials within regular classes, enrolment in summer courses and workshops, attending lectures and discussions concerning audio-visual aids, and participation in committee, departmental and school projects.

Supervisors, school principals, or directors of audio-visual education can assist teachers in this area. They should inform teachers about new instructional materials and interpret the materials for them through regular bulletins, teachers' meetings, or other means. They should facilitate and encourage teacher preview and evaluation of materials. They should develop committees and projects within the school which will encourage teacher experimentation with audio-visual materials. They should provide a card catalogue and/or bulletins of materials which the schools have. They should provide a file of data on teacher reactions and appraisal of materials. They should provide an adequate collection of books, indexes, and catalogues of the field. They should provide information and actual experiences with the newer and more effective teaching aids through the
in-service training and faculty meetings. School evaluation, criticism, and careful selection will foster the teacher acquaintance with audio-visual materials and equipment.

Universities, teacher-training colleges, and state departments of education, or audio-visual centres need to provide libraries of the best and newest audio-visual materials for the use of teachers.

(ii) **The Production of Audio-visual Materials.**

School-produced materials supplement commercially produced ones. When the school needs audio-visual aids appropriate to a specific situation, the schools should be encouraged to produce them. Adaptation to locality is an advantage most readily achieved by local productions.¹

School can produce many kinds of materials, especially the inexpensive ones. There are many types of photographic materials that a school can produce by using only a minimum of equipment and average competencies. The "still" category of the photographic materials are the 3 ½" x 4" and 2" x 2" lantern slides which may be produced in either black-and-white or in colour. Photographs of all kinds are within the reach of the schools. Instructional filmstrips are easily produced in black-and-white. These filmstrips may be simply a photographic record of a fieldtrip, or they may be detailed strips using graphic frames as well as photographs. Another

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¹ *Avid of Indiana, Handbook for the Audio-visual Programme Audio-visual Center, Indiana University: Bloomington, Indiana, 1948. pp.13-14*
still medium is the microfilm of books, documents, and papers.

Local productions of non-photographic materials include flat pictures, handmade lantern slides, graphic materials, models, objects, dioramas, collections and exhibits. The primary step in producing non-photographic materials is the collection of a pictorial file drawn from all available sources including the school, home, community, government, and industry. The materials are collected, evaluated, classified, indexed, and finally used for teaching purposes. From the pictorial file, many types of both projected and nonprojected materials such as handmade lantern slides, and pictures for the opaque projector can be prepared.

Graphic materials including maps, charts, diagrams, cartoons and graphs, can be made by the teachers or the students and be used in numerous ways including opaque projection, bulletin board exhibit, and individual study.

Different kinds of exhibits, including dioramas, models, mock-ups, specimens, and objects can be made and collected, classified and arranged, and finally properly exhibited.

A wide variety of audio-visual experiences can be recorded and played back later for instruction. The radio offers many educational, documentary, musical, and entertainment features that may be recorded and used in the
classroom. Student produced programmes may be recorded and broadcast at a
future date. If the school is producing motion pictures and filmstrips, a
running commentary may be recorded to be used with them. Important
documents and papers can be preserved through microfilming. Records of
special projects such as student orientation can be produced by school.

In a small institution the production staff may consist entirely of
teachers. In larger ones there may be some regular employees with technical
training in production. In every school or school system, there are teachers
with high competencies and abilities that can be used in production of
audio-visual materials. Instructors in subjects like arts and crafts may be
of great help. Teachers will be able to assist in all types of production.
The degree to which they can participate in the preparation of audio-visual
materials will vary. In a production programme newly started, they will be
as volunteers, working in their spare time, when the teachers become more
experienced and confident, they should be relieved of some of their teaching
load and formally assigned to an educational project on a part-time basis.
In this way, they will be able to put their best efforts into the preparation
of materials.

The pupils can also take part in the production of audio-visual
materials. Experiences in preparation are offered through extra-curriculum
activities and clubs sponsored by the school. They can engage themselves in
such activities as conducting research on subject-matter content, assisting in the production, and collecting props. Various school clubs can usually help produce many types of audio-visual materials, for instance, a photograph club can produce and assemble photographs, a craft club can make puppet or miniature sets for props and designs and construct costumes, a physics club makes glass slides, art, vocational, and other courses can offer experiences which would be valuable to an audio-visual programme. Students who show a high degree of interest and ability in curriculum and extra-curricular activities can be selected as technical assistants for the audio-visual programme and production staff. An organized plan of pupil activities would be a step forward in solving the problem of finding people with enough experience and training to work in the production of audio-visual materials for schools.
(III) THE AUDIO-VISUAL EDUCATION ORGANIZATION WITHIN THE INDIVIDUAL SCHOOL.

Since each principal is responsible for the improvement of instruction in his school, the use of audio-visual aids in his school fall in his sphere. However, general guidance may be provided by the bigger organization like the state department of education, the teacher-training college, or the central audio-visual centre. The principal receives detailed assistance from the audio-visual co-ordinator. It is the co-ordinator who should distribute the in-coming materials from the central audio-visual centre or other sources to the teachers, advises individual teachers in audio-visual matters, attends general meetings to become acquainted with new audio-visual aids and techniques.

For the schools to draw the maximum benefit from the use of audio-visual aids, it is necessary that a basic plan of organization of audio-visual aids in each school should be prepared. A satisfactory plan requires at least partial answer to the following questions:

1. What are the objectives for the audio-visual programme in the school?

2. What methods have been suggested for achieving these objectives?

3. What is the status of audio-visual programme in the school?

4. What improvements are feasible in the programme?
Each one of these questions is considered below--

(1) Objectives for the audio-visual programmes in the school:

A. Teacher Readiness.

Teachers must be trained in the use of audio-visual aids. This training includes the operation of different types of equipment as well as the selection and presentation of materials for most effective use. When the planning and mechanics of operation are mastered, the teacher can strengthen and enrich his teaching through the use of these media. The teachers must have mastered the fundamentals of good teaching also.

The classroom teachers must have an open mind to the use of teaching aids and must be willing to utilize such aids. This implies that the teachers must have formed a favourable attitude towards the use of audio-visual aids, and they must have also good understanding and ability in their use.

B. Availability of materials.

An ideal plan is to have a centre of audio-visual aids in each school. The school should provide the materials and equipment which are frequently used by the teachers in the school keeping in view the financial aid available to each school. Other expensive equipment can be procured from other sources such as by renting or borrowing. The following items are usually owned and housed by the schools—exhibits, graphic materials, flannel and bulletin boards, microscopic slides, models, recordings, slides,
specimens, and flat pictures. These materials should be kept in a central place and catalogued in such a manner as to be readily available to the teachers. Motion pictures and filmstrips can be borrowed or rented from other sources when they are in need.

C. Integration of Materials with Curriculum.

The proper integration of audio-visual materials with other materials results in better teaching. The objective in every school administrative unit should be the provision of the right aids at the right time. To reach this objective a well prepared catalogue of materials should be available, together with directions for making the best use of the facilities provided. If the audio-visual aids are treated as something apart from the course of study, they tend to foster amusement instead of education. The administrative unit should make every effort to see that the audio-visual aids provided and purchased are functionally valuable and closely related to the curriculum. One of the best ways to insure this integration of audio-visual aids with the curriculum is to appoint a committee of interested teachers to help select and organize the materials and to plan for their distribution.

D. Student Participation.

Student participation is necessary and desirable in a workable audio-visual programme. Students should be encouraged to operate and
maintain the audio-visual equipment in so far as practicable. The students can help prepare exhibits, assemble graphic materials, assist in the planning of fieldtrips, and give demonstrations. Any programme which allows for active student participation increases the value of the learning experiences on the part of the students. Students can preview films, filmstrips, and slides with the teacher. Their reaction helps in planning for more effective use of the teaching aid and in the determination of its value.

E. Utilization of Community Resources.

The teachers must know the resources of their communities. The resources can be easily determined through co-operative study of the community by the teachers, students, and representatives of citizen's organizations. Fieldtrips, speakers, printed materials, special events, and community-improvement projects can often be used to provide desirable learning situations for students with the co-operation of community groups or other local agencies.

(2) The Methods suggested for achieving these Objectives.

A. In-service and Preservice Teacher-Training.

Preservice and in-service teacher education in the field of audio-visual education must be provided to teachers, superintendents, principals, supervisors, and audio-visual education personnel.
The preservice training of the teacher is the responsibility of the teacher-training institutions. A teacher cannot be expected to use audio-visual materials if he has not seen them being used in his college classroom. Each new teacher should know how to use various types of audio-visual equipment and understand how to incorporate them into the teaching process.

The in-service training must be planned in terms of activities that can be carried out in the locality.

B. Financial Support.

Adequate funds must be secured to administer an audio-visual programme in the school. It may sometimes be necessary to organize fund raising drives from the public, but gradually it should be provided out of the school budget. The funds should be sufficient to maintain old equipment and materials as well as to purchase new ones.

Even if the funds are limited an audio-visual programme for the school can be undertaken. A small audio-visual centre in the school should be supplemented by hiring or borrowing materials from central agencies such as the film library. Several schools can unite in the purchase and distribute the latest and most effective audio-visual aids at small cost.
C. The Distribution of Materials.

The ordering and distributing audio-visual aids should be as simple as possible. The distribution from the central audio-visual centre to the schools through the use of the centre-owned or the school-owned conveyance.

(3) The status of audio-visual programme in the school

To know the status of audio-visual programme in the school, an investigation or a survey should be made. Only then we can know the real position and the weak points of the existing programme.

(4) Improvements that are possible in the programme

For an effective programme of audio-visual service the following improvements seem necessary:

1. Teacher training.

The preservice training offered to the teacher-students should include courses in audio-visual education. These courses should combine both theory and practice.

In-service training should be available to the teachers. Courses should be offered at conveniently located centres. The teachers should receive special instruction in the use of all types of audio-visual aids and in the proper integration of such teaching materials with classroom
instruction. Workshops should be held in the schools to bring home to the teachers the newest information on audio-visual methods of instruction. Demonstration lessons should be conducted in all school, and regular conferences should be held in the schools to help the teachers organize and utilize teaching materials.

2. Financial support.

The school will probably be handicapped in financing an audio-visual programme. It is suggested that state financial support should be provided for the audio-visual programme in the schools. This allotment of funds should be made on a per-pupil or per-teacher basis. However, a per-pupil or per-teacher allocation of funds may not provide an adequate programme in the small school. Several schools within a geographical area can combine their allotted funds for collective use.

3. Leadership.

State Department of audio-visual education, universities, and teacher-training institutions must take the responsibility of leadership in this sphere. They should have sufficient staff and resources for the guidance and co-ordination of selection, utilization, and production of audio-visual materials for the schools.
4. Administration

In each school the administration of this programme will be by the principal, a teacher, or a committee of interested teachers. Where a large number of schools have combined in the operation of an audio-visual programme, a full-time director is needed. Trained personnel should be available to direct this programme.

5. Physical facilities

Adequate space must be provided for storage, maintenance, display, and utilization of all audio-visual equipment and materials. For the projected aids, adequate facilities should be provided for good projection, sufficient ventilation for physical comfort and well-being of pupils during projection.

6. Research programme

There should be a continuous evaluation programme in each school to determine the worth of teaching materials and to correlate them with the curriculum. Much research should be carried out in the classroom in actual conditions faced by the teachers and the pupils. This may reveal the difficulties faced by the teachers in the classroom and would provide suitable methods of overcoming them. The results of such research should be made available to other schools and school systems through publications and a continuous sharing of experiences for the enrichment of all audio-visual programme.

There are many good examples how an audio-visual programme can be improved. One of these is quoted here. This may serve as an example for the teachers who make use of such aids in their teaching.

Some of the teacher-education institutions in the state of California, U.S.A., were slow to develop adequate audio-visual programmes for preservice student teachers. This delay was the result of:

a. a lack of readiness by the faculty to use these materials;
b. insufficient funds to procure competent personnel especially qualified in audio-visual education;
c. a lack of equipment and materials; and
d. a lack of building facilities.

The California Bureau of Audio-visual Education conducted an equipment and materials survey of the colleges in the State. Recommendations were made regarding the personnel, equipment, and materials needed to develop the programme. The greater lag was observed in some of the institutions supported by state funds. The officials of all the institutions showed a sincere desire to develop an adequate programme. One of the universities of the state had developed a comprehensive programme which includes a wide offering of teacher-education courses and a university service in audio-visual education for all instructors of the institutions.
The problem (a) concerning the question that what should be taught
to meet the state requirements was defined by the state superintendent.
This committee was composed of educators including college presidents, deans,
of education, superintendents, directors of curriculum and audio-visual
education, and teachers. They defined the competencies which teachers of
audio-visual education should have. Their report also emphasized the
necessity for using audio-visual materials throughout all courses.

Teacher-education institutions offered numerous extension courses for
the in-service instruction of teachers. County and city superintendents
encouraged their institute committees to include numerous section meetings
dealing with various phases of audio-visual education. Demonstrations of
good utilization practices, film and record previews, auditions, discussion
meetings, and short workshops are featured in most institutes throughout the
state. In this connection, the Bureau initiated efforts to bring national
leaders in audio-visual education to California for institute programmes
and other professional meetings. The State Department of Education presented
an administrative audio-visual education workshop. This group of directors of
audio-visual education worked for two weeks on administrative problems.
Their final report is a very valuable document in suggesting ways of
operating local departments and in generally improving those operations. In
studying their problems, the audio-visual educators recognized their own
need for a better understanding of the curriculum and felt that curriculum-
workers should have a better understanding of audio-visual materials. The selection of participants of this type of workshop would depend upon each school system sending its directors of both curriculum and audio-visual education to work as a team on common problems.

The problem (b) dealt with the need for greater financial support for audio-visual education throughout the state. Exact figures covering such support are not available. However, local budgets were consistently larger each year for such activities. The state aid to county school systems was spent largely for materials and for salaries of noncertificated (clerical and technical) personnel. Salaries of certificated (professional) personnel are generally paid from state supervision funds. In general, funds for audio-visual equipment used by schools is paid for by each school from local tax revenues. While equipment for the use of the county staff was purchased from the funds received through the apportionment provided by the state. In some instances, where a county superintendent feels that a certain school district was financially impoverished, the state funds were used to assist that particular district in procuring equipment. The funds for operating the State Bureau of Audio-visual Education are not drawn from that which is allotted to the county service fund but is provided for in the governor's budget as a part of the operating expenses of the State Department of Education. Although there has been a substantial increase in funds for audio-visual education, the increase has not been adequate to meet the needs of all the teachers.
The problem could be solved if the commercial companies get interested in producing materials and equipment which as far as possible would meet educational requirements. The Bureau has had the full cooperation of commercial companies. Conferences have been held with producers to outline needed changes and improvements. Many individuals and groups have been working with this purpose.

Currently, discussions are being carried on regarding the possibility of using prison labour to produce models and dioramas for school use. Such production would be confined to the preparation of such articles that require many man hours of work and commercial production of such articles is commercially uneconomical.

This problem is finding at least partial solution in the programme of preservice and in-service teacher education. Experience has, however, convinced many audio-visual education personnel that considerable research in this area is needed for a better understanding of the audio-visual process. However, some improvement in the selection of materials has resulted in the Bureau's recommendation that no material be purchased except when it is reviewed and recommended by the teachers, supervisor, and student committee.

The Bureau had consistently encouraged and helped school administrators to initiate audio-visual services. State-wide and regional administrative
conferences have included sessions dealing with audio-visual education. Members of the Bureau Staff have been invited to speak at county school trustees' institutes. The institutes are held annually in each county and are composed of principals, administrators, and members of local school boards. These meetings have been influential in gaining the support of county superintendents in establishing audio-visual services. In each instance the Bureau has recommended that broad services be provided to include films, slides, recordings, use of radio programmes, and a variety of other activities. An important aspect of the Bureau's recommendation has been that the county audio-visual education service include professional assistance to teachers in the proper selection, good utilization, and continuous evaluation of materials in terms of curricular needs and approved instructional practices. This requires a competent director who knows and understands the curriculum as well as audio-visual aids. In general, audio-visual departments are staffed by such personnel.

Numerous reports and articles have been released by the Bureau dealing with important developments in audio-visual education. Many of these articles have been prepared by professional committees and occasionally by individuals. It is the policy of the Bureau to encourage and assist individuals and groups preparing such materials. The Bureau publishes reprints and distributes them, usually without charge.
The problem (a), providing facilities for using projected materials in old or new buildings, has been approached in many ways. The State Department of Education has a division of School House Planning, which has been co-operating in making pertinent recommendations to architects and school boards. The University of California and the State Department of Education call an annual schoolhouse planning conference. Architects have shown great interest in making appropriate provision for darkening rooms and installing adequate electrical outlets in new structures.

The darkening of rooms in existing structures has received much attention. Preparation of a bulletin showing different ways of controlling light, types of materials used, their cost and availability has been undertaken.

A project of the Bureau is to promote more extensive classroom use of radio programmes allied to the curriculum. This project is an extension of activities already carried on. Consultants from the Bureau advise and work with the school personnel in helping them develop good radio utilization programme.

The foregoing description of the California State Department of Education's Bureau of Audio-visual Education has attempted to show how it has employed its resources and leadership to encourage the use of
audio-visual materials at all educational levels and to assure continuity of use; to improve the quantity and quality of utilization at all phases of the instructional process and to give advice on setting up local departments or services.
(IV) THE ADMINISTRATION OF THE SCHOOL AUDIO-VISUAL PROGRAMME.

Among the groups which should share the appreciation and responsibility of the school audio-visual programme are: (1) the board of education, (2) the superintendent of schools (3) the teachers.¹

The role of the board of education.

The board of education is a policy making and not a supervisory body. A board of education has a unique responsibility with respect to both the selection and the utilization of audio-visual materials and equipment. It is especially important that it makes sure that sufficient funds are provided for necessary and adequate audio-visual materials and that the teaching staff is fully competent in using them.

The role of the superintendent.

The attitude of the superintendents has a marked influence on the provision of audio-visual materials and equipment. The superintendent must realize that, regardless of the size of the school, the audio-visual materials have to be given importance but the staff should not be overburdened. In small schools it may be a part-time job, but in a larger one, several persons will be needed to successfully implant the plan.

Superintendents should recognize that adequate funds are available for the audio-visual programmes of the schools. Another major responsibility of school superintendents is to make sure that the board of education understands the function and value of audio-visual programmes. Constant appraisal of the results of the audio-visual programme should also be carried on by the superintendents. Only in this way they can be sure that the school funds are being efficiently used.

The role of the teacher.

Although the provision, payment, storage, inspection, and mechanical maintenance of audio-visual aids are not the functions of the teachers, they should, however, be associated with their selection. The selection of teaching and learning materials and equipment is the joint responsibility of the students, teachers, supervisors, and administrators.

Though the actual preparation of the school budget is ultimately in the hands of the superintendent, but good budgetary procedure provides for teacher participation. Thus it is the teachers' duty to inform the superintendents what audio-visual materials are needed. They must also be keenly aware of the constant supply of these aids.

Function of school audio-visual programme.

There appears to be five primary functions and four secondary functions in any audio-visual programme.
Primary functions.

1. Informing.
2. Educating and training.
3. Supplying.
4. Producing.
5. Assisting.

Secondary functions.

1. Reporting.
2. Recommending.
3. Cooperating.
4. Evaluating.\(^1\)\(^2\).

Informing.

One of the primary functions of the audio-visual directors is that of informing teachers and other personnel about the types of audio-visual materials, equipment, facilities, and services available to them. Without such information, these people may not be able to make full use of the services available. The flow of information must be constant. In addition to the existing services, new items and techniques are continually being introduced. Although these new items may not be added to the programme

immediately, a knowledge of their existence often generates interest in their possible subsequent use. The audio-visual director should develop and keep open formal and informal contacts with curriculum director, supervisor, and teachers. Formal methods include demonstrations, conferences, workshops, distribution of periodical literature and audio-visual catalogue, and similar types of activities. Informal methods include the writing of memoranda and information sheets, telephone calls, and personal contact with individuals or small groups.

Educating and training.

Educating teachers in the most proper method of utilising various types of audio-visual materials is imperative to the improvement of the quality of teaching. The training of teachers in the operation of equipment gives them insight into the advantages and limitation of each specific type. In-service education and training help keeping the faculty alert to new and more effective teaching methods and techniques.

Supplying.

Any audio-visual programme has to supply the teachers with materials and equipment. Teachers must be confident that materials and equipment will be available and operable when required.

Producing.

In many situations, the procurement and use of commercially produced materials is not the most proper solution to the particular teaching problem.
In other situations, commercial materials may not be available. It is, therefore, advisable to have production facilities available where aids for their own instructional purposes.

Assisting.

It is the responsibility of the audio-visual director to assist teachers to help themselves, i.e. the director should develop in them the ability to analyse teaching problems and to select methods and techniques for their solution.

Reporting.

Reporting on the progress and future needs of the audio-visual programme is an important secondary function. Such reports are vital to the school administration in evaluating the status of the instructional programme and the amount of financial support needed. All reports should, therefore, reflect teachers' needs and should have their active support.

Cooperation.

A good audio-visual programme is one which cuts across all aspects of the school system's operation, including administration, plant development, maintenance, and teaching. The director must work cooperatively with others in planning new facilities, installing and maintaining of equipment, organising and conducting in-service educational experiences, and a host of other activities.
Evaluating.

Constant subjective evaluation is necessary to the determination of effectiveness of the programme. Therefore, the audio-visual programme of the school must be evaluated regularly and steps should be taken towards its improvement.

Administering an audio-visual programme in a school involves:

1. Survey and appraisal of audio-visual methods.
2. Plans for meeting audio-visual instruction needs.
3. Execution of audio-visual policies and plans.
4. Evaluation.

(1) Survey and appraisal of audio-visual methods.

The superintendents of schools, principals, or supervising officers may initiate the survey of current audio-visual practices and needs of the school system. Although the school administrator should be the motivational force of such a survey, he may give this responsibility to a committee of interested teachers. If the school system already employs an audio-visual coordinator, director, or supervisor, this responsibility will rest with him.

The survey should take into consideration such questions as do the teachers use the various audio-visual aids in meeting the classroom
Learning needs of the student?; do the teachers evaluate and select the audio-visual materials used?; do the teachers know and employ tested techniques for using audio-visual materials effectively?; are the teachers alive to the physical aspects of audio-visual presentation?; have the teachers recently attended an in-service audio-visual training institute, class, or special seminar? These and such other questions have to be regularly kept in mind to make the use of audio-visual aids effective.

(2) **Planning to meet audio-visual instruction needs.**

When needs are discovered, plans should be made which will fill them as adequately as possible. It is the responsibility of the superintendent, with the assistance of principals and audio-visual coordinators, to set in motion plans for action. The administrator has authority to control the entire staff of a school or a school system to participate in the formulation of policies which effect the instructional programme. Policies relating to audio-visual instruction should include materials, equipment, physical facilities, funds, professional improvement, and other relative problems.

The policy making can be done through:

1. the audio-visual committee,

2. the school system audio-visual planning committee, or

3. the curriculum committee

The audio-visual committee is composed of the teachers who are interested in audio-visual techniques. If it is desirable for supervisor,
principal, and teachers within a single school to work together in developing policies for audio-visual programmes, the audio-visual planning committee may be established. In school systems with larger teaching staff, such a committee is composed of representatives of the various grades and subject areas of the school as a whole.

Since the role of audio-visual techniques is an expression of the implementation of curriculum responsibility, the curriculum committee should assume the next stage of responsibility, namely the investigation of the audio-visual materials and techniques that can bring about a better understanding of the objectives encompassed in the curriculum. They can coordinate the audio-visual materials and techniques with curriculum objectives. Any curriculum manual or course of study must contain lists of audio-visual materials used.

Plans are made and found acceptable to the school board, the administrators, and teachers must finally be provided with the funds available for the entire school programme.

(3) Execution of audio-visual policies and plans.

Execution is the stage at which thoughtful plan is to be put into practice. In a small school the administrator himself may assume responsibility for the execution of the audio-visual plan. In a larger school system, the
administrative duties and functions may be assigned to an audio-visual teacher-director, a building audio-visual committee, or an audio-visual director (whether full or part-time depending on circumstances).

The audio-visual Teacher-Director.

A teacher who is given supervisory audio-visual duties certainly should be released from some of his teaching load. Time is necessary for the many duties involved in executing audio-visual plans. The position of a teacher-director offers many advantages for a school's audio-visual programme. It is the first step in executing an audio-visual programme, and it can usually be created without major change in the school budget.

The teacher-director should usually have the following qualifications:

(1) interest in audio-visual methods, (2) successful teaching experience,
(3) knowledge of curriculum and of curriculum planning and revision,
(4) knowledge of the problems confronting the teacher who attempts to implement the curriculum with realistic and meaningful audio-visual learning, and (5) appreciation of the role of audio-visual methods in the improvement of instruction.¹

The audio-visual committee.

There may be reasons why the audio-visual duties be assigned to a small committee of interested teachers rather than to an individual teacher.

¹ Ibid., pp. 525-26
These reasons are interest in audio-visual methods, success in teaching, and willingness to serve.

**The audio-visual director.**

In urban communities, or in the school with over 1,500 students, an audio-visual director seems to be an important and completely justified administrative personnel. The audio-visual director must be a combination of outstanding teacher, curriculum worker, subject supervisor, and general administrator. Above all, he must have the interest of working side by side with interested teachers in furthering an understanding of the role of audio-visual aids.

The specific qualifications the director should possess are: successful experience in classroom teaching, professional training in audio-visual methods, competence in curriculum planning and its philosophy, ability to demonstrate audio-visual theories, plans, and techniques, continual professional contact with colleagues in connection with curriculum, teaching methods, and audio-visual education, and ability to work with teachers, fellow supervisors, and administrators.

The large city and county programmes may consist of a full time director and a large number of full-time staff members composed of both professionals and nonprofessionals. Small school system may only have a
part-time director and a few teacher or student assistants to carry out
the functions of the audio-visual programme.

According to De Kieffer, the professional staff should be responsible
for the following activities:

1. The evaluation and final selection of audio-visual materials and
equipment.

2. The planning and production of special audio-visual materials and
the supervision and direction of special radio and television programmes.

3. The supervision of the utilization of audio-visual materials within
the school.

4. The development of in-service education programme, in the
utilization of materials and the operation of equipment for all school
personnel.

5. The development and execution of budgets for the programme.

6. The consultation with teachers, administrators, patrons, and
architects concerning the activities and problems of audio-visual education.

7. The interpretation of the audio-visual programme with all the
ramifications to the school personnel and the public.

8. The experimentation with the more effective methods of utilization
of audio-visual materials, equipment, and techniques.¹

¹ De Kieffer, Robert E., Audio-visual Instruction, The Centre for Applied
According to Wittich and Schiller, the audio-visual director of the school has many responsibilities such as the following:

1. To assist the teachers in defining problems of instruction and in discovering ways of meeting them through audio-visual materials and techniques.

2. To assist the teachers to become more familiar with evaluation, selection, and utilization of audio-visual aids.

3. To act as general information centre so that the teacher will know whom to ask about problems concerning the utilization and operation of equipment, etc.

4. To acquaint his teaching staff with the newest developments in the field, such as new materials, new equipment, research findings, etc.

5. To foster inter school visits by teachers.

6. To advise the administration concerning needed audio-visual materials and equipment (and their estimated costs). ¹

(4) Evaluation.

In order to judge how well the execution of an audio-visual programme in progressing, such questions as those suggested above for the teachers will be valuable if they are also responded by the administrators.

¹. Ibid., pp.527-28
administrators must answer them in terms of the entire school system.

**What basis should be used in planning the budget for an audio-visual programme?**

Teachers working with supervisors and administrators will determine the cost of different types of materials needed. The frequency of use for each type of material determines the staff, equipment, and materials. It is the responsibility of the audio-visual director of the school to prepare the budget after consultation with teachers or their representatives and the business community. The budget includes the following items:

1. Salaries.
2. Operating expenses (such as transportation, maintenance, etc.)
3. Capital outlay (such as equipment and materials).

A large proportion of the school budget including audio-visual aids come from the local or state funds. However, a wise administrator will keep an open mind toward the necessity of using gifts from community organizations and subscription from pupils and parents. The audio-visual budget should be planned co-operatively as a part of the total school budget based on the needs of the total instructional programme.

**The Audio-Visual Centre.**

The schools today are using more audio-visual instructional materials, but too often in a haphazard and unsystematic manner. There are so many obstacles which delay the school utilization of audio-visual aids, such as
the teachers are not qualified to use audio-visual aids, materials and equipment may not be available for use when needed, adaptable instructional space is not available, and other difficulties as already mentioned in Chapter III. Though each school strives to improve the situation, but very often it cannot cope with the problems. Schools undoubtedly want some assistance from more efficient sources. The procurement, the distribution, and the maintenance of materials is a complex operation which is beyond the capacity of some schools. Materials and equipment may have to be obtained from a variety of sources and some of them need special handling abilities and special maintenance methods. Operators must be specially trained in their care and use, and finally, financial support for the audio-visual programme in the school may be inadequate. All this points to the need for a central audio-visual organization which will take the responsibility to provide proper facilities and promote teacher growth in the use of audio-visual aids. The central audio-visual centre should be more than a store house of materials. It should be a resource centre to which teachers may look for help in selection, preparation, and utilization of audio-visual aids.

The central audio-visual centre, whether it is large or small, can assist the individual school in the following ways:

1. It should provide such materials and professional services which will make it possible for teachers to use audio-visual materials in their classrooms under the best possible conditions.
This implies that:

(a) The centre should be able to suggest the best way to improve the classroom condition. It should be able to refer to school administrators, reliable and competent technicians or firms that can provide the needed materials and facilities.

(b) The centre should give guidance and counsel on the proper classroom facilities when the new construction is being planned.

(c) The centre should procure sufficient copies of various materials to be able to meet the request of individual teachers in individual schools.

(d) The centre should be responsible for the periodic servicing of schools' and the centralized equipment. It should provide stand-by equipment for emergency use by schools while their equipment is repaired.

(e) The centre should be responsible for training teachers, students, and supervisors in the operation and care of the equipment and the proper handling of materials.

2. The centre should provide those services which will make it possible for the teachers to get materials and equipment when they are needed. This implies that:

(a) The centre should issue catalogues, bibliographies, and special bulletins so that the school personnel has an accurate and up-to-date information on available materials.
(b) The centre should establish a distribution system that will make it easy for teachers to obtain materials.

(c) The centre should make every effort to see that the equipment is kept as close to the point of use as possible. In general, the equipment should be owned by the individual school, having been purchased from its own funds. When this is not possible, equipment should be assigned to schools on a long-term basis because transporting causes rapid deterioration of the materials.

(d) The centre should be responsible for periodic servicing of all equipment belonging to the school or the centre itself. The director should see that all equipment is regularly inspected and serviced.

(e) The centre should strive for continuous decentralization of materials, that is, the allocation of certain materials to individual schools.

3. The centre should provide the materials and services which will make it possible for teachers to select and use audio-visual materials appropriate to the teaching-learning situation. This implies that:

(a) The centre's director and professional staff should cooperate with supervisors and curriculum workers in selecting appropriate materials and in guiding teachers in the selection and use of such materials. The
director should be responsible for the preliminary screening and eliminating undesirable materials, but the final selection of materials should be by preview committees or other experienced teachers.

(b) The centre should plan to acquire materials on the basis of curriculum needs as determined by teachers, supervisors, and curriculum directors. This avoids haphazard choice.

(c) The centre should assist supervisors, teachers, and students in the choice and use of materials that meet their needs. This can be done through an in-service training programme which provides them many opportunities to become familiar with a wide range of materials and to develop standards of judgement.

(d) The centre should help plan the production of simple audio-visual materials to meet special curriculum needs.

4. The centre should provide the facilities and professional services which will assure that the audio-visual materials will be used as an integral part of the total instructional programme. This implies that:

(a) The centre should procure materials which will meet the needs at all levels of learning.

(b) The centre should cooperate in working with other school personnel on continuous curriculum revision programmes.
(c) The centre should plan for the continuous evaluation of materials in terms of achieving curriculum objectives and, if possible, for experiments and researches which may contribute to curriculum revisions.

(d) The centre should supervise classroom utilization of these materials at all levels of instruction. This may be done by: (i) working directly with individual teachers, (ii) working indirectly through in-service training of the teachers, and (iii) working through supervisors and administrators.

5. The centre should provide those materials and professional services which will enable the teachers to make full use of community resources. This implies that:

(a) The centre should assist to locate materials, places of local interest, and people in the community who can contribute information and rich experiences to the educational programme. Such resources include individuals who are authorities in various occupational fields or on certain subjects, as well as factories, mills, museums, parks, historical landmarks, municipal buildings, and airports, etc.

(b) The centre should work with supervisors, teachers, and administrators to survey community resources which are suitable for school use.
6. The centre should provide those professional services which will assure teacher competence in the use of audio-visual aids as well as competence at the supervisory and administrative levels. This implies that:

(a) The centre will be concerned with a continuous programme of in-service growth which will help teachers and other professional personnel gain the knowledge and understanding as well as the skills and abilities that are essential to the effective use of audio-visual materials.

(b) The centre should provide professional leadership which will help attain teacher competence in the use of these materials through activities such as:

(i) The preparation of teacher’s manuals, guides, or handbooks for using certain audio-visual materials.

(ii) The development of curriculum resource units which include a list of specific materials in an appropriate sequence with suggestions for using them, and annotated bibliographies of related materials.

(iii) The maintenance of the library of audio-visual publications for teachers, supervisors, and administrators.

(c) The centre should provide professional leadership in the appointment of preview and selection committee.
(d) The centre should provide professional leadership in planning and conducting meetings with faculty groups, teachers from several schools teaching the same grades, or the same subjects. The meetings may be planned in order to demonstrate the basic techniques of using audio-visual materials, acquainting groups with community resources that can be used, explaining techniques of producing teacher-made or student-made materials, and preparing study guides for use with audio-visual materials.

(e) The centre should provide professional leadership in conducting individual conferences with teachers. The chief purpose of such conferences should be to obtain information about the teacher's needs, to provide him opportunities to observe the methods used by other teachers, to help him develop simple standards of evaluation of materials and procedures, and to encourage individual research.

(f) The centre should provide leadership in conducting teachers' institutes or workshops based on the need of the teachers, supervisors, and administrators.

In brief the assistance which an audio-visual centre can offer to the schools are:

1. Achieving teaching competence in the proper selection, utilization, and evaluation of audio-visual devices and materials in terms of good

1. Audio-visual Materials of Instruction, N.S.S.E. 48th Yearbook, op. cit. pp.184-192
good instructional practices.

2. Obtaining greater financial support for the procurement of materials and equipment by local audio-visual units.

3. Influencing commercial companies to produce materials that can meet educational needs and securing state funds for other materials which are not available on a commercial basis.

4. Achieving a better selection and use of materials in terms of curricular needs at all educational levels.

5. Improving local programmes of audio-visual education and developing more effective services.

6. Disseminating pertinent information about audio-visual education to school personnel.

7. Developing a better understanding of audio-visual education by promoting interest in professional organizations, such as audio-visual education associations.

8. Obtain better facilities for using these materials in classrooms, both in old school buildings and in new ones.

9. Developing a state-wide radio-education programme.¹

The Audio-visual Committee of Education, West Illinois State, U.S.A., suggested three reasons why the teacher-training institutions should plan for audio-visual centres. They are:

(a) to provide a laboratory-teaching situation for preservice and in-service training of teachers;

(b) to meet utilization needs of college classes;

(c) to serve school and community groups within the area of the college with both materials and leadership.

In order to make a contact with the central audio-visual centre, the schools should select one of its teachers to act as a co-ordinator. In the Portland, Oregon, Public schools, audio-visual co-ordinators assist schools in the following ways:

1. Keep teachers informed of new materials and equipment.

2. Assist all teachers in the selection and use of audio-visual materials.

3. Supervise the training and work of student and teacher operators.

4. Co-ordinate the ordering, delivering, use, and return of audio-visual materials.

5. Promote effective utilization of audio-visual materials.

6. Co-ordinate the use of audio-visual facilities, equipment, and materials in the schools.

7. Provide a clearinghouse for handbooks, bulletins, and other resource materials.

8. Supervise care and storage of audio-visual equipment and materials.

A study by Denno in 1950 listed nine major responsibilities of the school co-ordinator as:

1. Administration of a general type.
2. Ordering and scheduling materials and equipment.
3. Maintenance of equipment and facilities.
5. Contact with central audio-visual service.
6. Preparation and distribution of audio-visual information.
7. Development and maintenance of a school audio-visual material library.
8. Supervision of school-produced audio-visual materials.

1. Audio-visual Materials of Instruction, Forty-eight Yearbook, N.S.S.E. op.cit.,p.118

2. Denno, Raymond E., "The Audio-visual Building Representative" in Harde Road, Fred and Allen, William, Audio-visual Administration. W.M.C. Brown Co.: Dubuque, 1951. pp.56
According to Exter, the role of the school co-ordinator is somewhat different from the Denno list. They are as follows:

1. Recommend a budget for supplies and materials not furnished by the central audio-visual office.
2. Schedule and maintain equipment and materials.
3. Handle the distribution of equipment, supplies and materials.
4. Promote a school in-service training programme.
5. Train and coordinate the efforts of student-assistant crews.
6. Provide teachers with literature and sources of information.
7. Promote an organized plan for the development of audio-visual physical facilities in his school (room darkening, checking adequacy of electrical facilities, locating storage areas, setting up a workroom).
9. Serve as contact person for scheduling resource persons in the community and arranging fieldtrips.
10. Keep simple records.¹

Since the majority of the schools in Thailand are in rural areas, the audio-visual programme of the audio-visual centre must be extended beyond the urban areas and must reach the pupils and teachers in small schools and in

isolated communities. The ordering and distributing of audio-visual materials should be as simple as possible. The best distribution is to be obtain through the existing channels of communication between the rural schools of a given area. This may be through the use of a community-owned truck, the centre-owned truck, by use of the rural mail service, or by scheduling materials to coincide with country-wide meetings of principals and teachers.
THE FACILITIES FOR THE USE OF AUDIO-VISUAL AIDS IN THE CLASSROOM.

The schools of today must be planned to accommodate a wide variety of experiences and activities and a great deal of individual study. They must be designed for the full use of the various audio-visual materials and equipment now available. The use of radio, television, tape recorders, teaching machines, language laboratories, all kinds of projection, including the non-projected materials have placed a new demand on the school building designing. Control of light, heat, sound, and ventilation are the problems to be taken into consideration if the use of audio-visual aids are to be fully effective. The wide-spread use of the audio-visual aids in the classroom has created a great demand on the architect, the school administrator and the teacher in planning classroom facilities.¹

The classroom of today is to be planned for various activities as mentioned in Chapter 2, it should be bigger than the older ones which usually be rectangular in shape, the length being twice the breadth.

The classroom should be conveniently close to the school library and the audio-visual centre. There should be good natural light, good ventilation, good light and sound control. Its chalkboard area must be large enough. Besides the chalkboard, there should be sufficient space for bulletin board, area for displaying, projection screen, area for the

projectors, and storage areas for some audio-visual aids. The desks, seats, and other furnishings should be light-weight, movable, and flexible. Light and electro outputs must be properly installed and easily accessible to the teachers.

The classroom which is used for learning language, art, social science and mathematics should have an area for acting and dramatization in the front and the area for consulting and planning of the activities including space for preparing simple audio-visual aids.

The projection in the classroom is now necessary because the students can learn much from slides, filmstrips, opaque pictures, transparent pictures, and motion pictures. The increased use of these projections creates many new problems. Some schools solve the problems by converting an extra room for special projection purpose. This is not a good solution as shifting the students from the classroom to the special projection room is time wasting, it causes difficulty in maintaining the schedules. It is criticized by the audio-visual administrators as a way which badly reduces the value of learning through projections. Knowton and Krasner have studied the result of learning through projections in the classroom and in the extra room and they concluded that projection in the classroom is more effective.

The Building and Equipment Committee of the Department of Audio-visual Instruction (U.S.A.) has suggested desirable conditions of the classrooms.¹

The table below shows the various facilities which are needed by the classrooms for the use of audio-visual aids.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Suggestion</th>
<th>For the use of</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chalkboard</td>
<td>Should be fixed along the whole length of the front wall of the classroom. A rail for map, chart or screen should be fixed above the chalkboard. A storage space may be provided under the chalkboard.</td>
<td>Chalkboard for teacher's or students' writing, Rail for hanging map, projection screen and other graphic materials, cupboard for storing.</td>
</tr>
<tr>
<td>2. Bulletin board</td>
<td>Approximately 1/3 of the whole solid wall area, or fixed to the wall.</td>
<td>Installation of informations, pictures, posters, and other graphic materials. May be installed with shelves for displaying three dimensional materials.</td>
</tr>
<tr>
<td>3. Display area</td>
<td>The area should be flexible suitable cases, shelves, or other means for displaying should be provided.</td>
<td>Educational displaying.</td>
</tr>
<tr>
<td>Facility</td>
<td>Suggestion</td>
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<tr>
<td>4. Display case</td>
<td>Fixed at one wall joined to the hall or corridor. Should be built of clear material so that it can be seen from the hall or corridor and from the classroom.</td>
<td>Exhibiting materials or classroom's projects.</td>
</tr>
<tr>
<td>5. Storage case</td>
<td>May be fixed under the windows, at the front or the back of the room. Should be both close- and open-types, consisting of adjustable shelves. There should be various types suitable for various materials to be stored.</td>
<td>Storing books, teaching aids, and raw materials for preparing teaching aids.</td>
</tr>
<tr>
<td>6. Working area</td>
<td>Should be as a part of the classroom, installed with sound-keeping materials.</td>
<td>Teacher's or Students' working space, preparation of teaching aids, activities, consultation, or quiet study.</td>
</tr>
<tr>
<td>Facility</td>
<td>Suggestion</td>
<td>For the use of</td>
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<tr>
<td>7. Light control devices</td>
<td>Should be provided in all classrooms which use projection for learning experiences.</td>
<td>Darkening the room while projection is being operated.</td>
</tr>
<tr>
<td>8. Projection screen</td>
<td>Should be provided for every classroom. Should be such which can be used in all types of projection. Rolling screen being kept above the chalkboard in the more convenient one.</td>
<td>For the projection of slides, filmstrips, overhead projection opaque and transparency materials projection, and motion pictures.</td>
</tr>
<tr>
<td>9. Electric outlets</td>
<td>The 20 ampere current excluding power for lighting purpose should be provided in each classroom. There should be at least one double female-type outlet at the front wall and one at the back wall of the classroom. There should be different electrical switches near the teachers' table.</td>
<td>Utilizing electrical equipment. Controlling light at different places of the classroom.</td>
</tr>
<tr>
<td>Facility</td>
<td>Suggestion</td>
<td>For the use of</td>
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<tr>
<td>10. Sound</td>
<td>Acoustic materials should be fixed along the outer sides of the ceiling and along the walls and the floor.</td>
<td>Protecting of the undesirable sound from outside and reducing the reverberation of sound inside the room.</td>
</tr>
<tr>
<td>control</td>
<td></td>
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<tr>
<td>11. Furniture</td>
<td>Tables, desks, chairs, cupboards and cases should be of an easily movable type.</td>
<td>Arranging furnitures to suit different activities needed.</td>
</tr>
<tr>
<td>12. Ventilation</td>
<td>Should be in consideration, especially when the room is closed for the projection purpose. If possible, mechanical means of ventilation should be provided.</td>
<td>Ventilation and temperature controlling.</td>
</tr>
<tr>
<td>13. Light</td>
<td>Should be of the controlable type.</td>
<td>Allowing the note-taking while the room is darkened for the projection purpose.</td>
</tr>
<tr>
<td>bulbs</td>
<td></td>
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</tbody>
</table>

Many classrooms do not have all the facilities and equipment described above. In most cases, some of the desirable equipment will not be available and some of the facilities will be far below the standards suggested here. Some remote classrooms may not even have the electrical power. Others may have lights but no power outlets. Some will have excellent chalkboards but not bulletin board space; others will have narrow bulletin board strips high on the walls above chalkboards.

Inventive teachers have devised ways to use audio-visual materials despite unfavourable classroom situations. An environment favourable to learning can be created in almost any room. The following are a few suggestions to assist the teachers in overcoming several common difficulties due to inadequate facilities.

Light control.

The ingenious teacher can control classroom light and use projected materials. One teacher who could not obtain drapes for his room, invented a reflecting mirror large enough to be used as a projection screen for an entire class. By careful screen and projector placement most of his students could see black-and-white films and filmstrips with little difficulty.
One teacher constructed wooden frames of the size of the windows, cover them with tar paper or other opaque materials, and set them in the windows. This procedure blocked ventilation, which of course, could be used only for short intervals. Scouring powder can be mixed with lampblack to darken small curved-top windows in old buildings, etc. Even large sheets of black paper scotch-taped to windows have been used by desperate teachers.

If electricity is available, pictures can be projected. Shadow boxes have been built in many schools, by shading the screen from direct light, a picture can be shown to an entire group of students, the "darkening the screen" rather than darkening the room. Some teachers have placed the screens in closets to cut off direct sunlight and have found that this was satisfactory for at least a part of the class. Running a film twice makes it available to the entire class. In a good-sized closet, the opaque projector can be used as an enlarging device. Since it has a short "throw", maps or pictures can be reflected onto large sheets of paper. The enlargement can be copied and later used with the entire class.

These ideas are merely suggestive to many possibilities open to teachers. In a particular room a teacher can undoubtedly find other temporary expedients for light control and used for projecting materials. The word "temporary" should be emphasised; they should lead to permanent solutions to such problems.
Acoustic control.

Many rooms have poor acoustics. Sound absorbent materials will help to improve such rooms. Darkening drapes help some when shut for projection, but very little when pulled back for normal classroom work. If reverberation is still bad when drapes are closed, putting a coat or blanket over the back of the projection speaker sometimes helps.

Some teachers have taken burlap or muslin, had the children decorate it with block-print or potato-print designs, and hung it at strategic spots on the wall. This serve to decorate the room and at the same time deaden sound. The corrugated-paper covering which makes chalkboards into bulletin boards will also help to reduce sound reverberations. Cutting down the reverberation and noise level improves room "climate" and reduces tensions.

Work space.

If the desks are bolt to the floor, a work space can be created by cutting plywood sheets large enough to fit over two desks in a row, or over four desks, with two in each row. Arrange a storage place for these sheets to stand straight or to lie flat so they will not warp. For wet work, give them two or three coats of waterproof lacquer. About eight of these boards can be made to convert a formal recitation room into a social studies laboratory.
A piece of plywood placed over four orange crates becomes a work table and the crates can be used for storage. Students can paint them or cover them with cloth remnants. Or an old sheet can be dyed and decorated with simple designs. When the top has been coated with lacquer, it becomes a good work space for a primary room. Work easel can easily be made of chip board or masonite, two pieces can be held together by small hinges. Three pieces can be made to stand quite solidly. Single piece of chip board will stand in the chalk tray. All these methods can be used to provide art or drawing work space.

**Storage space.**

Cheap wooden crates help provide additional storage space. A wooden crate makes a useful picture file. A corrugated-cardboard box also can be used. It can be painted and be made to serve for a long time. Shelves can easily be made from ordinary bricks and 1" x 12" boards. Glassbrick will serve well as supports. If high shelves are needed, easily installed metal wall brackets to support wood of the width needed could be used.

**Display space.**

Many simple methods can be used for making attractive displays. A fine wire drawn out along a wall can be used to hang pictures, charts, or posters. Paper clips will hold them in place. The wire taut drawn across the room area can be used to display small models, puppet heads, or finger paintings.
Basels can be constructed for display as well as for working space. They need to stand high but need not be especially solid. A simple three-legged one can be constructed for use as a stand for a small bulletin board. Inexpensive celotex or wall board which will accept thumb tacks also make a good portable bulletin board. Felt placed on the back of these sheets, edged with moulding can be used as felt-boards on the back.

A 4" x 6" sheet of celotex or peg-board can be placed in a simple frame, supported by two or three triangular base supports, and used as a portable bulletin board or a multipurpose room divider. Painted with poster paint, it can brighten any section of the room.

In a room with more chalkboards than are needed, those not required can be covered with coloured corrugated paper. By using "T" pins or common pins, corrugated paper makes an excellent bulletin board. If more chalkboard space or a portable chalkboard is needed, a piece of smooth masonite painted with chalkboard paint can be used. Display space can be expanded easily. Ideally, approximately onethird of the available free wall space in each classroom could be given over to the bulletin boards. A large area will provide adequate space for a number of student groups to plan, construct, and display their work as one large unified presentation.