A Critical Study of the Problems Concerning the Provision and Use of Audio-Visual Aids in the Secondary Schools in Thailand

THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN EDUCATION

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A CRITICAL STUDY OF THE PROBLEMS CONCERNING THE PROVISION AND USE
OF AUDIO-VISUAL AIDS
IN THE SECONDARY SCHOOLS IN THAILAND.

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KITIMA AGADHAY.
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The guiding objective of this research is to study the existing situation, problems, and requirements for the use of audio-visual aids in the secondary schools in Thailand. It also aims at suggesting ways and means of improving and modifying the existing classroom method in the secondary schools of Thailand in the light of the results obtained.

The steps undertaken in this conduct are: a survey of the allied studies and tests; analysis of the responses to the questionnaires circulated to the school principals, teachers, and the students of 20 secondary schools in the principal area — Chonburi and Chonburi, and 35 secondary schools in the provincial areas, both government and private selected by the method of area sampling, and systematic random sampling; and valuation of the data obtained.

The survey has revealed that the secondary schools in Thailand are short of teaching aids, though the teachers very well realize the advantages and necessities of audio-visual aids in teaching. Besides the shortage of audio-visual aids, the existing condition of the classrooms is a problem in the proper use of audio-visual aids. Other problems are: a lack of understanding, knowledge, skills, and ability of the teachers in the proper use of such aids, and a faulty system of distributing aids to schools and to teachers.

Suggestions are finally stated in the attempt to solve the problems mentioned: how to create better understanding, knowledge, skills, and ability of the teachers in audio-visual aids techniques, how to improve the management of audio-visual programmes in the schools, how to modify the facilities and condition of the classrooms, and how to overcome the shortage of audio-visual materials and equipment for use in the schools.
The content of this thesis can be briefly stated as the following:

Chapter 1 - Statement of the objective of the study.
Chapter 2 - The necessary and advantages of audio-visual aids in teaching.
Chapter 3 - Other studies related to the problems studied in this investigation and their results.
Chapter 4 - Methods used in the procurement of the data and the way to analyse them, the display of tables showing the result of these data.
Chapter 5 - Interpretation of the data shown in various tables.
Chapter 6 - Statements of some fundamental principles useful for the utilisation of audio-visual aids in the schools, which is divided into 5 headings: the education of teachers in the use of audio-visual aids; the preparation of audio-visual materials; the audio-visual service system in the schools; the administration of school audio-visual programmes; and the condition and facilities of and in the classrooms.
Chapter 7 - Conclusion of the study and suggestions for improvement.
CHAPTER 1

Introduction and Objectives of the Study.
CHAPTER I

INTRODUCTION AND OBJECTIVE OF THE STUDY.

In the old educational system, the students and the teachers were tied to the passive character of learning and teaching. Reading and listening to the teachers were the only method of learning, while oral lecturing and writing down on the chalkboard were the only method of teaching in the schools. This certainly paralysed the intellectual and creative powers of the students for they had no chance of learning by doing, by testing, by experimentation or by applying their own experiences.

According to John Dewey, schools have responsibilities to provide opportunities for children to learn from their own experiences and creative activities. Only by this way, the children can develop their minds and keep pace with the changing situations and the demands of life.

The educators of today have accepted instructional aids as one of the most important ingredients to effective teaching. Transferring knowledge to the learners is not merely by repeating the verbal meanings - by words and letters to them. Other equally important sources of knowledge are through hearing, touching, seeing and doing by the learner. Verbal symbols, the spoken and written words
and number, are the most abstract form of instructional material. Connection between these symbols and their meanings is rather arbitrary. Their meanings have no perceptual link to reality. Direct experience is purposeful participation in a real life situation in which the learner accepts responsibility for the outcome of the experience.

Direct experience of is the way to better understanding and long-lasting learning. All the aids which help attain these direct experiences and vicarious experiences are called 'Audio-Visual Aids'. "To be a competent teacher today" suggest Wittich and Schuler, is "to understand the method available in the classroom for providing all manners of needed and meaningful learning experiences, and to understand audio-visual techniques as a means of accomplishing learning goals efficiently"1.

Edward Dale stated that "Visual and auditory techniques offer great opportunities for improving learning"2.

No Clusky mentioned that "Audio-Visual aids have a high value to the achievement in the instruction of every subject in every level of teaching"3.

Adolf Ferrier pointed out that "The school of today too often strives violently to stuff the young minds with verbal reasoning and abstractions far beyond their grasp that the adolescent has his intellectual growth stunted by the need of memorizing endless large doses of material given in the curriculum".

Blount and Klausmeier wrote, "Many students cannot get sufficient meaning from reading alone. They would profit from the seeing and hearing, looking and listening, experiences made possible with those audio-visual materials that concretize the abstract. Events, concepts, and processes become more meaningful to the student when audio-visual aids are used to help him better conceptualize what the printed or spoken words attempt to describe."

The time has changed. Today there is a greater demand for education resulting in the increase of the school enrolment. The students come from different home backgrounds. The schools have become bigger and the students have to be taught in large groups. If we wish to increase the productivity of education without increasing the wastage, we have to use every device and every medium that the educational technologists can devise, as Brymore Jones Committee stated, "There is a wide-spread need for the provision of a co-ordinated communication service in most academic institutions".

1. Adolf Ferrier, "Activity School". P. 6
Besides, numerous researches and experiments have shown the worth of audio-visual aids in the teaching-learning process. While technology has been embraced by industry and business, little attention has been paid to its application in the field of education. According to many educators, we are on the threshold of a new era in education labeled by some as the "Communication Revolution". It is predicted that this era will see the broad application and use of technology in the instructional process.

Educators themselves differ as to the role to be played by technology in education. This has created problems which have been summarized by Finn as follows:

1. Those connected professionally with education have not developed a well-conceived point of view concerning technology and education;

2. because of this lack of a clear point of view and because of certain cultural lag factors naturally associated with education, the acceleration of technological development has tended to by-pass the entire educational enterprise until very recently;

3. Professionals in education are not prepared to deal with the tremendous impact that technology is beginning to have on the instructional processes itself as, by the technological process of extention, technology begins to invade education in full force, and

---

(4) the absence of an understanding and a point of view among the professionals creates a situation where the Neo-Technocracy not only can but are beginning to move into the field of instruction.

Since the utilization of audio-visual aids in the instructional process is increasing in the developed countries and has effectively helped in teaching and learning, the Ministry of Education of Thailand has also realized its significance. An Audio-visual Aids Centre in the Ministry was established in Bangkok in 1965 and audio-visual aids departments are managed in the various secondary schools throughout the country. The teacher training institutions have trained new teachers in this technique for which finances have been provided by the government.

The teachers, however, had to face difficulties in the utilization of audio-visual aids in the schools. Some of these difficulties are those that have been discussed by Finn, besides the lack of sufficient audio-visual materials and equipments or suitable school buildings, and lack of appropriate training to teachers in this field. Though these are serious problems but they can certainly be overcome if the real causes of failure can be found out and suitable methods adopted to eliminate them.

**The Objectives of the Study**

This study aims at finding out the problems connected with the slow progress of the utilization or implementation of the scheme referred
in the previous paragraph and to offer suggestions for improving the situation with special reference to secondary schools in Thailand.

The study will be limited to the secondary schools in the capital of the country (Bangkok and Chonburi) and the schools of some advanced areas where the enrolment is not less than one thousand (which may be called a fairly large school). The schools selected will be both public and private existing in these areas. The schools selected for this study are considered fairly advanced and fairly large enough to have better chances of improving their conditions and providing facilities than smaller schools or schools in the rural areas. Moreover, the author has looked forward to the future need of the country. The country faces today the problems of insufficient schools. This problem will become more and more acute with greater demand for education. The schools of the future would be larger and there is a possibility of small-sized schools getting less in number. In the opinion of the author the schools with large enrolment will be more efficient, economically feasible and better administered.

This study will be a field study based mainly on survey method. The investigation will cover all the areas which may be affected by:

(1) The attitude of the three important groups in the schools—the school administrators, the teachers, and the students.
(2) The knowledge and ability of the teachers in the application of audio-visual aids in actual classroom situations.

(3) The frequency of actual utilization of audio-visual aids.

(4) The schools providing audio-visual materials and equipment to their teachers and students.

(5) The schools' audio-visual service.

The data will be based on the responses of the questionnaires sent to a number of secondary schools in Thailand. Three groups of personnel of each school will be requested to respond. These are the school principals, the teachers, and the students. When the nature and the needs of the required problems in those schools are revealed, some proper guidelines for solving the problems will be suggested.

The author hopes that this study will be helpful to the Ministry of Education, the educators, the school principals, the school administrators, the teachers and other persons connected with instruction in the secondary schools in Thailand.
CHAPTER - II

Background and Problems
CHAPTER II

BACKGROUND AND PROBLEMS


Till the close of the nineteenth century the students were stuffed with the knowledge which was thought will enable them to have social and intellectual superiority. At that time the secondary school programme consisted of a single course of study or at most two courses which the students were required to pursue. The primary objective of the school was to develop the mental faculties of the students. The educationists at that time thought that the mental faculties could be strengthened, like muscles through tough mental exercise, so the subjects should be taught well and thoroughly.

At the end of the nineteenth century, John Dewey insisted that public school education should be a fundamental method of social progress and reform, therefore, instructional procedures in the classroom should be focussed on helping the learner: to develop so that his expressive and creative abilities would be directed toward socially significant goals. High school subjects began to be thought in terms of their abilities to make the students socially efficient. Demands for vocational education, industrial education, and home science were readily accepted while group projects and social-problem solving, fieldtrips, and such activities that emphasise the social objective in schools were encouraged.
Secondary school today is not only a place to give knowledge to the students, but to make them know themselves and the others, to lead their lives in an imperfect social world and a rapidly changing physical environment.

2. Learning and Experience:

The school which can be called a miniature society has the responsibility to provide opportunity for children to learn from their own experiences and creative activities. The three basic steps of the learning process are experience, understanding, and thinking. Experience is perceived from sensory sources (eyes, ears, nose, tongue, and body). Without these sensory receptors we cannot learn because we cannot perceive any experience. After perceiving, we transfer it into meaningful conceptual groups in our mind called understanding. By this understanding we are able to think further. Thinking is the ability to organize experiences into a usable association or to discover relationship between two experiences or between the former experience and the new one and make it useful into solving new problems. Learning is to understand and the profit of learning is the ability to solve problems arising out of new situations.

All previous experiences which are transferred to be an understanding must be ready to be recalled and be used in real situations when needed, else that understanding will be useless. Recalling will be easier if the retention of that experience or understanding is possible. Learning is a mental process. The association of ideas, their retention and recall make learning possible. The clearer mental imaginary and mental picture is, the more permanent learning will be and it will be easier to recall when needed to solve new problems. If the idea is abstract, the mental picture will be vague, difficult to be remembered and to be recalled. Direct experience, concrete object and well illustrated lessons give a clear picture to the mind.

The basis of all learning is experiences. Experience is the source of knowledge. Knowledge is the accumulation of experiences and infor-
mations, intelligence is ultimately associated with the _general stock_ of knowledge. John Dewey pointed out that intelligence is the experimental way of living, the method in which human beings react or interact with his environment and it is the product and expression of accumulative funding of the meaning reached in special inquiries.

There are many kinds of experiences: the direct (first hand, or concrete sensory) experience, the vicarious (contrived representative or vicarious experience, and the abstract, symbolic, or verbal) experience. Direct sensory experience derived directly from seeing, hearing, tasting, smelling, and touching, are the basis for further development of abstraction, for the understanding or interpretation of words and other symbols such as figures. Thinking and imaginary may proceed without direct and immediate sensory experience, but the essence of thought and imagination is the extent of the previous experiences. Vicarious experience derived from the substitutes of the direct sensory sources which remind us of the very source or to the previous experience accumulated in one's mind. Abstract experience received from verbal symbol that is spoken and written words and figures. There is no perceptual link between its meaning and reality, its meaning usually arbitrary and hard to understand.

Edgar Dale has explained the various levels of experiences by a chart called the "Cone of Experiences". It illustrates the stages between direct experience and pure abstraction. The base of the cone represents the most immediate, concrete, direct, purposeful experience. Proceeding up the cone step by step, the experiences become more abstract and less direct. At the top of the cone is the verbal symbol which is the most abstract. All these levels of experiences, with the materials that accompany them, can do a significant work in effective teaching and learning.
Direct, purposeful experience, as mentioned before, is the direct experience derived from the reality of things through our sensory source or source. He called it "the unabridged version of life itself" and described it as "the bedrock of all education".

Converted experience is the replica or simulation of reality. Since sometimes it is impossible or difficult to learn directly from real things, the thing may be too big, too small, too dangerous, or too far to be brought into the classroom, so the substitute of that real thing must be utilized. The globe is an example of material for this kind of experience.
EDGAR DALE'S Cone of Experience

The course as a whole conveniently subdivides into three major groups:

1) Direct experiences  
2) Contrived experiences  
3) Dramatic participation  
4) Demonstrations  
5) Field trips  
6) Exhibits  
7) Motion pictures  
8) Radio, Recordings, Still pictures  
9) Visual symbols  
10) Verbal symbols

- involve **DOING** in order of decreasing directness
- involve **OBSERVING** in order of decreasing directness
- involve **SYMBOLIZING** in order of increasing abstractness

VICARIOUS LEARNING through WORDS
(abstract symbols of Reality
speech = writing, formulas)

VICARIOUS LEARNING through A.V. MATERIALS
(Mechanical Representation of Reality)
Maps, Charts, graphs, objects, specimens,
pictures, models, slides, filmstrips, motion
pictures, recording, radio, dramatics, T.V.

DIRECT LEARNING through FIRST-HAND EXPERIENCES
(Immediate Sensory contacts with Reality)
Resource, visitors, interviews, field trips, surveys,
extended field trips, camping, service projects, work
experiences.

PYRAMID OF EXPERIENCES OF JAMES S. KINDER
An illustration of 3 levels of instructional materials in a
sequential arrangement.
Direct learning through first hand experiences furnish the bed
rock of all understanding.

Source: Kinder, James S., Audio-Visual Materials and Techniques.
Dramatised experience is in fact a kind of contrived experience. Participation in a dramatised experience can give us feeling of reality that is no longer at hand. In dramatised participation, the learner is primarily a "doer" rather than an observer. This is true in other contrived experience and in direct reality also.

Demonstration and field trips put the learner in the position of a spectator looking at things or observing people at work. But in being a spectator, one becomes both a participant as well as an observer. This provides both direct and abstract experiences.

Exhibits are almost less direct and more abstract. The exhibit is a representation of reality, often simplified to emphasize particular characteristics, processes of relationship.

Television and motion pictures bring sensory concreteness, a feeling of reality, and a unique clarity. Motion pictures can express reality so that it becomes clearer and more comprehensive. The learner is a spectator, participating in the experience vicariously and imaginatively. Television can provide something that the motion pictures cannot do. It can present the real event immediately as it actually happens providing immediate contact. It is, therefore, a direct way of communication.

Still picture, radio, and recordings are in one sense materials which give less direct and more abstract experience. In them, certain elements or dimensions have been abstracted so we are a little far away from the direct experience.
Visual symbols like maps, charts and diagrams bring us into a fully abstract representation of experience and reality. Visual symbols are a kind of shorthand for reality.

Verbal or quantitative symbols are at the top of the "Cone of experience". It is the most abstract stage. A verbal symbol, whether a word, a letter, or a number, is a representation of an idea or a thing, bearing no physical similarity to the thing or the idea it stands for. It is completely abstract except the meaning we expect it to have. The meaning is generally accepted and understood. Though verbal and numeral symbols are of absolute abstraction from reality, it does not mean that the wise men only use it. Verbal symbols are commonly used by all human beings who listen and speak. They vary in complexity, they are flexible and have definite capacity for different kinds of utilization.

The graphical cone of experience of Edgar Dale does not suggest that teaching and learning always begin with the most concrete stage and moves to the more abstract stage in a kind of mechanical sequence, and it does not suggest that one sense is better than the other in learning system. No single kind of experience will prove equally effective with all learners. Each kind of experience is functionally worth at the appropriate time, in appropriate situations with particular learners.
(3) The value and significance of audio-visual aids in learning:

Audio-visual aids help to form a clear concept of things and provide direct experience or indirectly for contrived experience. Any device which can be used to make the learning experience more concrete, more realistic, and more dynamic can be considered as audio-visual aids. The reason is that it helps to stimulate the two important senses—seeing (visual) and hearing (audio). Besides these, there are other terms that are not popularly used, for instance, instructional material, multisensory material, perceptual aids, and iconic cybermatics.

There are different ways of classifying audio-visual aids. Usually it is divided into two groups, visual aids and audio-aids. The visual aids including all the aids which give sensory perception through seeing such as chalkboard, flat and still picture, graphic material, map and globe, model, real thing, mock-up, diorama, and display. The audio aids are those aids which offer perception through hearing such as gramophone, recording and radio. Some aids are the combination of visual and audio characters; aids in this group are television, slide, sound motion pictures, and filmstrips combined with sound recording, and visual telephone.

Audio-visual aids have also been classified into basic aids, mechanical aids, and activity. Textbook, chalkboard, flannel board,
picture, graphic material, sand table, model, map and globe are in the
group of basic aids. The group of mechanical aids consists of film,
filmstrip, slides, tape record and record player, gramophone, radio,
television, various kinds of projectors such as overhead projector,
opaque projector, microfilm, and language laboratory, teaching
machine, and other devices which may be developed in future. The
activity group consists of all the activities which help learning by doing,
for instance dramatization, excursion; role playing, and sand-table.

Edgar Dale and Kinder have classified audio-visual aids on the
basis of the level of experience. Edgar Dale has divided his "Cone
of experience" into many parts, for each part he suggested the appropriate
audio-visual aid as shown in the diagram on page 13.

Kinder has divided his cone of experience into three parts each
consisting of several suitable aids as shown on page 14.

None of these classifications, however, suggest the superiority
of one type over the other; each has its own value. An expensive device
like language laboratory or teaching machine may not have more fidelity
than a chalkboard or a model in one situation. Excursion to a real source
such as to an industrial plant, however, inexpensive it may be is more
profitable to a certain group of students of a primary school than a
motion picture. The real value of an audio-visual aid depends upon its
ability to provide a certain needed experience in a certain situation.
<table>
<thead>
<tr>
<th>Reproduction group</th>
<th>Reproduction reproduction reproduction group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuscript notes by lectures or participant</td>
<td>complete or duplicated notes, bibliographies and reference with deliberate gaps</td>
</tr>
<tr>
<td>duplicated pictures</td>
<td>wall displays (including chalkboard)</td>
</tr>
<tr>
<td></td>
<td>specimens (natural, i.e. real objects)</td>
</tr>
<tr>
<td></td>
<td>working models, formalised models, enlarged models</td>
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<tr>
<td></td>
<td>epidiascopes</td>
</tr>
<tr>
<td></td>
<td>printed textbooks, work books</td>
</tr>
<tr>
<td></td>
<td>programmed sheet and book texts</td>
</tr>
<tr>
<td></td>
<td>audio tapes, local or general, disc recordings</td>
</tr>
<tr>
<td></td>
<td>language laboratories (audio only)</td>
</tr>
<tr>
<td></td>
<td>still slides, filmstrips, overhead projection</td>
</tr>
<tr>
<td></td>
<td>audio-visual tutorials, augmented language laboratories</td>
</tr>
<tr>
<td></td>
<td>stereograms 'moving' overhead projection systems</td>
</tr>
<tr>
<td></td>
<td>silent films, specially cassetted loops</td>
</tr>
<tr>
<td></td>
<td>sound films with magnetic (changeable) sound</td>
</tr>
<tr>
<td></td>
<td>sound films with optical (built-in) sound</td>
</tr>
<tr>
<td></td>
<td>programmed texts in machine formats</td>
</tr>
<tr>
<td></td>
<td>radio vision (broadcast sound plus in-house visuals)</td>
</tr>
<tr>
<td></td>
<td>video-tape-recordings (CCTV)</td>
</tr>
<tr>
<td></td>
<td>audience-response-systems</td>
</tr>
<tr>
<td></td>
<td>live TV programmes (CCTV)</td>
</tr>
<tr>
<td></td>
<td>computer-based instructional systems sound broadcasts</td>
</tr>
<tr>
<td></td>
<td>TV broadcasts.</td>
</tr>
</tbody>
</table>

A hierarchical order of selected audio-visual instrumental media.

<table>
<thead>
<tr>
<th>Aids</th>
<th>Sensory channel</th>
<th>Verbal or Pictorial</th>
<th>Who controls rate and repetition</th>
<th>Group or Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalkboard, blackboard</td>
<td>sight &amp; sound</td>
<td>Both</td>
<td>maker</td>
<td>group</td>
</tr>
<tr>
<td>Model, chart, map, etc.</td>
<td>sight</td>
<td>chiefly pictorial</td>
<td>user</td>
<td>either</td>
</tr>
<tr>
<td>Book</td>
<td>sight</td>
<td>chiefly verbal</td>
<td>user</td>
<td>either</td>
</tr>
<tr>
<td>Photograph, slide, filmstrip</td>
<td>sight</td>
<td>pictorial</td>
<td>user</td>
<td>group</td>
</tr>
<tr>
<td>Silent motion pictures</td>
<td>sight</td>
<td>pictorial</td>
<td>maker</td>
<td>group</td>
</tr>
<tr>
<td>Recording</td>
<td>sound</td>
<td>verbal + musical</td>
<td>maker</td>
<td>either</td>
</tr>
<tr>
<td>School broadcasting</td>
<td>sound</td>
<td>chiefly verbal</td>
<td>maker</td>
<td>either</td>
</tr>
<tr>
<td>Sound motion pictures</td>
<td>sight + sound</td>
<td>both</td>
<td>maker</td>
<td>group</td>
</tr>
<tr>
<td>Television</td>
<td>sight + sound</td>
<td>both</td>
<td>maker</td>
<td>either</td>
</tr>
<tr>
<td>Tape recorder</td>
<td>sound</td>
<td>chiefly verbal</td>
<td>user</td>
<td>either</td>
</tr>
<tr>
<td>Language laboratory</td>
<td>sound</td>
<td>verbal</td>
<td>user</td>
<td>either</td>
</tr>
<tr>
<td>Teaching machine</td>
<td>sight</td>
<td>chiefly verbal</td>
<td>user</td>
<td>individual</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>Programmed text</td>
<td>sight</td>
<td>chiefly verbal</td>
<td>user</td>
<td>individual</td>
</tr>
<tr>
<td>Closed-circuit television</td>
<td>sight</td>
<td>chiefly verbal</td>
<td>user</td>
<td>individual</td>
</tr>
<tr>
<td>Computer based adaptive teaching machine</td>
<td>sound</td>
<td>both</td>
<td>user</td>
<td>group</td>
</tr>
</tbody>
</table>

Functions of Various Media for Instruction.

Robert Gagne has summarized the instructional functions of various media as reproduced here. The summary should help us know the relation between the learning process and conducting the individual and group work in using audio-visual aids.

<table>
<thead>
<tr>
<th>Function</th>
<th>Objects demonstration</th>
<th>Oral communication</th>
<th>Printed media</th>
<th>Still pictures</th>
<th>Moving pictures</th>
<th>Sound movies</th>
<th>Teaching machines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presenting the stimulus</td>
<td>/</td>
<td>limited</td>
<td>limited</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Directing attention and other activities</td>
<td>x</td>
<td>/</td>
<td>/</td>
<td>x</td>
<td>x</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Providing a model of expected performance</td>
<td>limited</td>
<td>/</td>
<td>limited</td>
<td>limited</td>
<td>limited</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Furnishing external prompts</td>
<td>limited</td>
<td>/</td>
<td>limited</td>
<td>limited</td>
<td>limited</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Guiding thinking</td>
<td>x</td>
<td>/</td>
<td>/</td>
<td>x</td>
<td>x</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Inducing transfer</td>
<td>limited</td>
<td>/</td>
<td>limited</td>
<td>limited</td>
<td>limited</td>
<td>limited</td>
<td>limited</td>
</tr>
<tr>
<td>Assessing attainment</td>
<td>x</td>
<td>/</td>
<td>/</td>
<td>x</td>
<td>x</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Providing feedback</td>
<td>limited</td>
<td>/</td>
<td>/</td>
<td>x</td>
<td>limited</td>
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<td>/</td>
</tr>
</tbody>
</table>

Note: / = IT FULFILS THE FUNCTION
X = IT DOES NOT FULFIL THE FUNCTION

The result of certain researches and the claims made by experts in this field have shown that if properly used, audio-visual aids have the following values:

1. They supply a concrete basis for conceptual thinking and hence reduce meaningless word response of the students.

2. They provide visual and audio presentations of events, concepts or processes that often cannot be studied first hand or that cannot be understood easily by listening and reading alone.

3. They have high degree of interest for the students. Children with very few conception find these materials very attractive. The relation between interest and effectiveness of learning is so well established as to be axiomatic. They do make learning more interesting, once a learner becomes interested, he becomes self-motivated.

4. They introduce variety in teaching, variety itself stimulates a zest for learning and discourages boredom.

5. They supply the necessary basis for developmental learning. Because fact and information are retained better when presented to the students in different settings, so audio-visual aids promote retention. Compared with the verbal learning alone, they make reinforced learning more permanent.

6. They develop a continuity of thought; this is specially true of motion pictures.
(7) They offer a reality of experience which stimulate self-activities on the part of the students. They tend to increase voluntary reading and self-initiated investigation, to the extent that the students have the desire for further study, audio-visual aids have motivational value in various content areas.

Audio-visual aids motivate the child's learning by arousing his interest in a number of ways.

(a) Since they are something new for children, they provide a change from the usual activities of school such as reading, writing and listening. The novelty of aids makes them attractive.

(b) They provide a change in the atmosphere of the classroom. The attitude of the teacher and the children are very friendly. This pleasant and natural atmosphere contribute greatly to learning.

(c) They are comparatively easy to understand.

(d) Many of them give children opportunities to do something so they provide an added appeal.

(e) They contribute to growth of meaning and hence to vocabulary development.

(f) They enhance understanding. Audio-visual aids stimulate thinking and understanding. With audio-visual aids not only more facts are learned, but more can be known about the meaning and implication of these facts.
Edgar Dale shown that critical thinking improved in every grade to a marked degree because opportunities were provided for creative reorganization of experiences.

(10) They provide experience not easily secured by other materials and contribute to the efficiency, depth, and variety of learning.

(11) As they enable students to understand concepts and processes that are extremely important in their daily living, audio-visual aids help realize societal objectives.

(12) They influence attitudes. This is particularly true of motion pictures, radio, television, fieldtrip and resource persons who can easily influence attitude. Schools can use them in establishing suitable attitudes in the students.

(13) They facilitate habit formation and provide facilities in training skills. The training time can be cut down from 19-55% when audio-visual aids are used.

(14) They provide a common experience or group of concepts that form the basis for later study.

(15) Because some materials can be learned more quickly visually than by other methods, visual aids save time for both the teachers and the students.

1. This conclusion made from the study of the Tower Hill School of Wilmington and Tilton, for the American Council on Education was mentioned in Kinder, James, Audio-Visual Materials and Techniques (Second Edition), American Book Company; New York, 1959, pp.13-14.

2. Kinder, James, Audio-Visual Materials and Techniques (Second Edition) American Book Company; New York, 1959, p.15. This can be affirmed by some of the researchers, for instance - Chance, Clayton W., Experimentation in the Adaptation of the Overhead Projection Utilizing 200 Transparencies and 600 Overlays in Teaching Engineering Descriptive Geometry Curricula, University of Texas, 1950; and Vandermeer, Ahren W., "The Economy of Use in Industrial Training: An Experimental Study of the Use of Sound Films in the Training of..."
(16) They provide uniformity in perception. What a person perceives depends partly on the stimulus and partly on the background of experience which are used to provide meanings.

(17) They give initial concepts which are correct, real, and complete.

(18) They provide for direct interaction of the students with the realities of the social and physical environment. Students can directly come in contact with the real phenomena instead of reading or listening about them. Audio-visual aids link the lessons to the life of the learners and make them feel as if they were their own problems. They help to associate knowledge to real life.

(19) They overcome the limitations of the classroom. Some concepts are difficult to be really brought home to the students in the classroom. Some are too big, too small, too far, too slow, too quick, or too complex, but audio-visual aids can bring these things into the classroom at the desired moments with the desired results.

(20) They overcome the limitations of restricted personal experience of the students. Audio-visual aids in the classroom open equal chances to all the students.

(21) They provide integrated experiences which vary from concrete to abstract. Audio-Visual aids have many versalities for every level of a learner's ability and for all levels of experience from concrete to abstract.
(22) They help to meet differences in needs and interests, in abilities, in experiences and in maturation.

(23) They provide natural and effective learning environment. Such a pleasant and natural atmosphere encourages learning.

4. Mass Communication and Technology in Education.

The schools’ primary responsibility is to communicate an understanding of contemporary society to the young people. Any school classroom is a small communication world in and of itself. Within it, teacher and students exchange and develop ideas and mutual understanding.

Communication is any thing that conveys meaning or message from one to another or other persons. Communication will be accomplished by the media of communication, if the media are effective, the communication is also effective. Since teaching aims in giving ideas, or information, or understanding to the learners, so communication is the very essence of the teaching system.

With the invention of printing, books became the first mass media of communication which furnished informations and ideas to a large group of people, so reading and writing became the important way of communication in the schools. The means of communication through books is by words (or verbal means), so the method of conveying ideas, informations, or understanding

2. Ibid. p. 6
from teacher to the students or, from students to the teacher is oral.
The teacher gives information to the students by words; the students read the book, note the informations they receive in words and try to remember those informations or knowledge by reciting them again and again at time without any real understanding of the ideas conveyed by those words.

Is this system of learning successful? There are many barriers to this type of word communication such as verbalism, confusion, daydreaming, imperception, disinterest and actual physical discomfort. Wittich and Schuller pointed out that verbalism is the failure of using words as a means of communication which takes place when dependence on words alone continues, the efficiency of words will usually decline just as muscles tire when over used, so interest and attention lag before a never-ending barrage of words. Such verbalism is a definitely limiting barrier to effective classroom communication.

Confusion can easily occur when students and teachers draw upon differing backgrounds of experiences for interpretation of words. The ability of two people to use the same words and arrive at completely different understandings is one of the great dangers in classroom too.

1. Ibid. p.7
2. Ibid. p.8
In classroom, when the lesson or the teaching goes on in an uninteresting manner to the students, they can easily turn away from it to some other thoughts of their own which is more interesting, called "daydreaming". Classroom experiences that depend on verbalism may be completely rejected because of their not so well understood and less interesting quality.

Congenial and suitable environment is an important factor for learning. The light, temperature, acoustic effect, classroom atmosphere, table and chair arrangement and physical comfort, colour and decoration are factors for efficient learning effect. Inappropriate environment or physical discomfort is a barrier to teaching and learning.

When these barriers or some of these barriers appear, the possibility of understanding new knowledge by the students is destroyed. To avoid these barriers other method of teaching should be adopted.

The school teaching, however, has gone far beyond the old method of speaking and listening. Since the fifteenth century, there were some changes in the teaching communication. Erasmus, the Dutch educator, protested against learning by reading the recitation only. He suggested that textbook ought to be illustrated. Comenius in Poland compiled a text book where most of the topics were based on everyday-life of the people in Poland. There were about 150 illustrations in that textbook. These were to add to the comprehension of the readers through visual sense. After that Jean Jacques Rousseau protested against learning through recitation alone.
He suggested the utilization of sensory materials into the teaching system. Johann Heinrich Pestalozzi pointed out in the nineteenth century that teaching is to be on sense perception, and that observation of real objects in nature is one way of perceptual learning. Montessori, Parker, and Dewey also insisted that learning must be made meaningful and suggested that words be meaningful only when they are related, directly or indirectly, to objects or experiences which the learner is acquainted with. The learner has to be offered a wide range of direct and contrived experiences which will provide a basis for meaningful learning and he has to have sufficient percepts to enable him to develop significant concepts.

The Industrial Revolution which took place in the nineteenth century brought many changes. Mass media became important to our daily life—economic, political, social and educational. Kinds and number of mass media are increasing day by day in a remarkable degree and messages are communicated to millions of people in every corner of the world. In the nineteenth and twentieth centuries we had pamphlets, newspapers, magazines, comic papers, radios, televisions and motion pictures distributing ideas, informations, news propagandas, and recreations to the masses. They are the tools for explaining the changes that are rapidly taking place among people, places, and events all over the world. We are now living in the modern communication world. The circulation of daily newspapers increased and also the picture magazines. The radio and television stations and radio and television sets are increasing in large number in every country. Radio becomes our constant
companion in the home, in the car, and everywhere. Moving-pictures and theatres are being increasingly built. Recorded tapes and discs also become important for entertainment, education and business enterprises. Technological advancement is bringing out new machines for mass media today.

Students are getting acquainted with these media. They become the students' extra-school communication environment and the students in the modern age may be called the communication-conditioned students, surrounded by a developing scientific environment. This possibly is a challenge to the school system itself such as the importance of the school may be lost amidst the influences of the current mass media surrounding the students? Can the school provide new techniques in teaching which is as interesting as the extra-school communication environment? If it cannot, the work in the schools might become less interesting. How then can the schools teach its students to adjust themselves to the changing society and the changing world under the influence of the modern mass media without involving these media itself? The important problem therefore, is how can the school adopt the new technology to its own needs, that is to use them for more effective teaching.


In the traditional schools, as we have seen, the method of teaching and learning is "read-listen-recite". The children go to schools with their textbooks and exercise books. They sit at their desks in the classroom and listen to the teachers' explanations. The teachers transfer knowledge by
spoken words and occasional writings on the chalkboard. The students are like machines to be fed with "knowledge" or information from the teachers; they never had an opportunity of contacting the direct sources of knowledge. Verbal explanation is a narrow source of giving real comprehensive knowledge. for in such learning the children use only one sense—hearing or seeing alone. The best learning takes place when the greatest number of senses are stimulated.

Common sense and researches both indicate that students can gain more through an instructional programme that cast a wider net, that is a programme in which a variety of tools are used. Abstract symbols in the schools is still of utmost importance, but the effective teachers are no longer tied up only to the abstract symbols. Instead of using only one way of sensory source, they turn to use as many sources as possible which are appropriate to the situation.

The evidence from many researches pointed out that audio-visual aids are valuable for all levels of ability, for both bright and dull children, for all ages and grade levels from kindergarten to university.

In the kindergarten and the primary schools, it is necessary to provide the children with all available direct experiences. The abstraction of verbal

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2. For examples:
   (c) Slattery, Sister M.Jamsetta, "An Appraisal of the Effectiveness of Selected Instructional Sound Motion Pictures and Silent Filmscripts in Elementary School Instruction", Catholic University, 1953.
method should be introduced to them only when their experiences are firm enough to make the words meaningful to them. In the primary schools, the basic knowledge is taught to prepare the students for the higher knowledge. Audio-visual aids which are used at this level are direct experiences through real objects, models, mock-up, dramatization, demonstration, flash-card, picture, sand-table, puppet, role-playing, and field trip. Radio, recording, motion pictures and television are used occasionally.

In secondary schools, subject contents are more highly specialized than at the primary level. The curriculum extends to broader area, subject contents increase both in breadth and depth. Knowledge comes in more abstract form than in the previous grade. The audiovisual aids should be provided in order to give the vicarious experience base for all students.

Psychologically, the nature of adolescent students in the secondary schools demand an active, not passive, process. The teacher must encourage students to express their ideas in many forms, not to confine their expression merely to the verbal. The teacher must emphasize divergent abilities such as fluency, originality, and flexibility, not to enforce conformity to only one way of proceeding or only to activities where one correct answer is accepted. The teacher must encourage expression of emotional sensitivity, independence, self-confidence with the new and questioning traditions, not try to mould every student into one personality
pattern. The teacher must encourage students to produce novel methods and ideas. These can be achieved by using audio-visual aids in the teaching-learning system because they provide varied chances to the students to select the one of their liking, their characteristic and their maturity. Discovery and creativity can be proceeded in a broader and deeper sense with the help of audio-visual aids.

There are some important changes in the trend of teaching methods and sources of experiences in modern secondary schools.

(1) The students are provided with the sources of knowledge and experience which are broader and deeper in characteristics.

(2) The teaching and learning process in the classroom requires more participation on the part of the students in various conditions which will be more meaningful to them.

(3) The utilization of the acquired knowledge can be demonstrated in numerous ways and can express deeper understanding of the problems studied.

The modern classroom of the secondary school will thus be more like a laboratory. It will be a place where the students will experience all evidences or materials from observation and the events and experiences received from various sources. Group discussion, dramatization, and display have their roles in education more than the textbooks alone.

Today the students in the classroom are not passive listeners; they also take part in various activities which enable them to "learn by doing", for instance:
(1) **Planning** - Problem analysis and discussion, film projection, display,

(2) **Arranging** - selecting and fixing the programme of motion pictures, broadcasting, recording, excursion to places, election of the committee personnel or sending questions to government or business sources,

(3) **Committee's duties** - Deciding the functions, collecting informations, considering the decision of the group, displaying and reporting the informations and the decisions, preparing to display the reports in various forms such as through model, chart, display, dramatization, report writing, oral report, and discussion, etc.

(4) **Individual study** - knowing how to use the sources of knowledge and information for instance libraries, community sources, government and business sources working in the laboratories, art and music rooms and workshops,

(5) **Reading** - textbooks, reference books, reports, magazines, official bulletins, newspapers, microfilms.

(6) **Listening** - listening to the lectures by the teachers and school mates, members from various groups, community personnel, broadcasting programmes etc.

(7) **Seeing** - demonstrations, motion pictures, still pictures and photographs, slides, filmstrips, diagrams etc.

(8) **Convention** - construction, drawing, designing, modelling, stage showing, display.
(9) Training - in order to have skills and be familiar with language, grammar, mathematics, vocabulary, etc.

(10) Exhibit - displaying of charts, models, pictures, graphs, posters, demonstrative materials, reported materials, stage shows, classroom dramas, gallery displayings, etc.

(11) Conclusion and reporting - disseminating the result of the committee or classroom's activities through writing or oral reports, publishing in the school magazines, and discussions, dramatizations, broadcastings, recordings, motion pictures, productions, etc.

(12) Storing - keeping the written materials, reports, committee's projects, school magazines, etc. both in finished and unfinished forms.

If the factors that determine the extent to which audio-visual materials can be used is considered, one will see that the general philosophy of the teaching staff of a particular school will determine to a great extent the nature of the instructional materials that will be used. The child's level of experience and his ability are also determining factors. Primary and lower elementary school children need a rich variety of concrete experiences to help them understand and interpret the words they hear and read. But for the children of higher class, the materials used can be more abstract. Furthermore, children with low degrees of ability are considerably more dependent upon situations of a concrete nature and benefit greatly from the use of audio-visual materials.

Some subjects, such as social studies and science, lend themselves to motion pictures; literature and music, to recordings; and art and
geometry, to still pictures. Materials in areas dealing with skills in arithmetic and language arts are now in the experimental stage of development.

Examples of audio-visual aids used in various subject areas in secondary school.

**SCIENCE** - Direct experience, demonstration, science museum, motion pictures, still picture (projected and unprojected), radio and recording, dramatized events in science and history, chart and other graphic materials, television, three-dimensional material, newspaper, pamphlet, opaque projector, films, slide, filmstrip.

**SOCIAL STUDIES** - Map, globe, picture, chalkboard, bulletin board, filmstrip, slide, television, opaque projector, motion picture, model, sand-table, painting, mural, play, visiting and exhibit.

**HISTORY AND CIVICS** - Field trip, library research, interview, motion picture, recording and transcription, radio, dramatization, still picture, television, graphic material including globe, chart, time lines, etc.

**INDUSTRIAL ARTS AND VOCATIONAL EDUCATION** - Demonstration, model, mock-up, exhibit, specimen, field trip, motion picture, filmstrip, slide.

**HEALTH SAFETY AND PHYSICAL EDUCATION** - Practicing, model, mock-up, demonstration, field trip, exhibit, chart, diagram, poster, motion picture, television.

**LANGUAGE ARTS** - Projected materials, object, word-chart, dramatic participation, and observation, field trip, motion picture, wire, tape, and disc recording.
Thailand is situatéd in South-East Asia between 98° degree east longitudes, and 6° - 25° degree north latitudes. In the north is China, in the west is Burma, in the north-east is Laos, and in the south-east is Cambodia. In its south is the Federation of Malaya, while toward its south and south-east is the gulf of Thailand which is a part of the South China Sea.

Thailand covers an area of 198,454 square miles, which is divided into six geographical regions: the Northern Part, the Korat Plateau, the South-Eastern Part, the Central Plain, the Western Hills and the Southern Pennincular Part. A large part of Thailand is a lowland. Generally the weather is mild, though there are three marked seasons: summer season, rainy season, and winter season. The Korat Plateau is the driest part while the Southern Pennincular region receives heavy monsoon rain. In the Northern Part, with the four large rivers, the land is heavily wooded with teak and resinous trees. The population here is concentrated in the valley which yields good crops wherever irrigation is available. The same condition is also found in the Western Hills drained by the two main rivers. The Central Plain forms the historic nucleus and is thickly populated. Its lowland is regularly renewed through the action of the annual flood between June and December. The South-Eastern Part is an extension of the Central Plain to the border of Cambodia, but the rainfall here is heavier than that in the Central Plain, resulting in a more luxuriant natural vegetation. The Southern Pennincular region is characterized by heavy rainfall. The Korat Plateau of the north-east, with no important river or irrigation facilities is sparsely populated.

Thailand is an agricultural country. The main crop is rice, except in the Korat Plateau. Neak is found in the northern region, rubber and tin in the southern. Rice, rubber, tin, teak, jute, kenaf, maize, tapioca products, castor seeds, live-stock, and raw cotton are the most important
items of export.

Although road and air transport have made the travel to the remote regions possible, there are still hill areas and many remote rural areas which are inaccessible except on foot through narrow jungle tracks. Such difficulties have hampered the spread of schools.

Thailand 's total population today is about forty million. The density of population is largest in the Central Plain. Besides agriculture, Thailand has its old - established tradition of handicraft industries such as cotton and silk weaving, reed ware, and bamboo utensils. In the later 1930's the government decided to establish some factories under its control and to allow foreigners to establish industries. The Second Development Plan (1967 - 72) aimed at speeding up the process of industrialization but even so the industrial sector forms only 16% of the National Income and embraces no more than 5.5% of the labour force. Therefore it seems possible that in the near future the bulk of the population will continue to live and work in rural areas. From the western standard the country is still underdeveloped, though from Asian standard it has been relatively prosperous, with

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2. There is a clear distinction between "underdeveloped" areas (i.e. where there is no economic/agrarian development regardless of whether such development is possible) and "underdeveloped" areas (i.e. an area or country that is capable of further development of both human and physical resources) no country can be fully developed and all reference to development can only be relative.
no extremes of great wealth and equally poor poverty. From the economic point of 
view, the land available and the current rate of economic growth have been 
sufficient to support a substantial population increase without great pressure. 
Thailand's GDP (Gross National Product) per head is not particularly high 
(in 1971 it is 57 Pounds and the income per capita is about £500.

The present capital, Bangkok, was built in 1782. Notwithstanding the survival of many former capitals, it enjoys a degree of ascendancy over all other cities within the country. The transformation of Bangkok to a modern city was a natural consequence of the opening of the country to foreign trade after 1855. Bangkok is nowadays expanding rapidly to be the largest city in Thailand. Together with its sister city, Phoeburri, it forms the political, social, cultural, commercial, and growing industrial centre of the nation. Its population is now over three million (9% of the national population). The educated elite is concentrated here. Most of the universities as well as most industrial enterprises are concentrated in the Bangkok - Phoeburri area. In Bangkok there is a striking contrast of wealth and poverty which are not so much evident in other cities. There is a big gulf separating the upper classes of Bangkok from even the surrounding village life, created by the presence of government officials who generally lead a life apart from the rest of the town people. In Bangkok the lower middle class is mostly craftsmen and skilled workers (mostly Chinese) and the government employees of lower ranks (mostly Thais). The rest of the population comprises of vendors, unskilled labourers, domestic servants, etc.; among this latter group are a number of country- men who come to the city in the hope of finding jobs. The population is over crowded in Bangkok while between 85 - 90% of the population live in small villages. The other 10 - 15% live in urban area. Chiang Mai, the second largest city, has a population of less than 66,000 and only five other towns have population of over 25,000; Thailand is therefore predominantly rural with one large urban centre. 

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I. Ibid. p. 36
As wealth and industrialization are concentrated mostly in Bangkok, the city grows even more remote from the rural areas where the majority of the people live, than it was in the past. In 1971 almost one-third of all secondary schools (505 out of 1,600) and five and half of the nation's ten universities were concentrated in the capital. There is the uneven distribution of schools in the country, for although most villages have their own lower primary schools, very few have upper primary schools. By 1970 although there were over 24,000 lower primary schools there were only 2,200 upper primary schools and 4,505 government secondary schools. Most of the upper primary and secondary schools are located in small towns or cities and not in rural areas. 50% of the nation's primary schools are still situated in monasteries and the others are in poor constructional condition. This is clearly an unhealthy educational imbalance. Not only are the provision of amenities and the distribution of schools better but the prosperity of the towns and its opportunities contrasts strongly with the poverty of the countryside.

Apart from a number of Muslim Malays who form the population in and around Pattani, Yala, Mara Thivas, and Satool, a small number of Cambodians who overlap the eastern frontier along the foothills of the Dongrek Ranges in the South-Eastern Part, and a few scattered hill peoples in the north and the west, followed by a mere sprinkling of Indians, Pakistanis and small tribal groups, there is also a number of Chinese accounting for about 13% of the population. The Chinese and those from Malaya maintain their own language, traditions, religions and private institutions and have never been exactly assimilated in the local culture. The Chinese is a small but powerful minority group in Thailand. Over 50% of them live in the southern part of the Central

1. Ibid. p.41.
Plain and form a significant proportion of Bangkok's population, playing an important role in the commercial life of the city, in which they are mainly lower government officials and professional people.

Beside these groups, the indigenous population of Thailand is ethnically homogeneous, and possesses national consciousness, reinforced by loyalty to the King and devotion to Buddhism which is the State religion.

In Bangkok over 25% of the employed labour force is engaged in government service at various levels, including posts in universities and schools. In rural areas, most of the people are peasants (80-85% of the whole population). The basic social structure and pattern of life in rural areas varies from that in the capital city, and there are also considerable differences in the standards of living existing in the big cities. Rural communities still remain free of a hierarchical class system found in the capital and the big cities. Thai peasants place little value on material goods beyond the bare necessities of life. They live in hamlets of 100-150 households which form part of larger village communities of up to 3,000 individuals. Village life centres round the temple and religious festivals.

Under the formal sovereignty of the King, a Council of fifteen ministers chosen and headed by the Prime Minister form the ruling staff of the country. Besides the all-important Office of the Prime minister, there are the following ministries: National Development, Defence, Finance, Foreign Affairs, Agriculture, Communications, Interior, Justice, Economic Affairs, Public Health, Industry, Universities, and Education. The authority of the government is carried throughout the country through officials of the Ministry of Interior, the governors of the seventy-one provinces, district officers, and officers of the technical ministries, such as education, at provincial and district levels.
In the field of education, the country is divided into twelve educational regions. The provincial educational officer has a dual responsibility both to the governor of his province and to his ministry in Bangkok. By the recommendations of various recent studies on manpower and educational development, and Educational Planning Office was established in the Ministry of Education in 1964 and the National Education Council ( NEC ) exercises general advisory functions in the Ministry of Education. The ministry also receives advices on educational problems and policies from the Teachers' Institute of Thailand ( Buru Sabha ).

The whole system of education is organized by the State and all registered institutions are under its supervision. Private organizations and individuals are permitted to establish, and operate primary and secondary schools in accordance with the ministry's regulations. The State allows wide freedom to institutions of higher education which operate within the framework of relevant legislation.

The Ministry of Education consists of two offices and eight departments: the Office of the Secretary to the Minister of Education, and the Office of the Under-Secretary of State for Education; Department of Primary and Adult Education, Secondary Education, Vocational Education, Teacher Training, Physical Education, Educational Techniques, Religious Affairs and Fine Arts. In 1959 all universities were transferred to the Office of the Prime Minister, but in 1974 a new ministry, the Ministry of State Universities, was established; and all the universities were transferred to it. In 1979 the national Council of Education was established. It consists of eminent laymen as well as nominated senior members of university staff as its members. The Council holds special responsibility for considering the over-all plans for educational development and advises the Ministry of Education, with the
exception of primary schools, which may be under municipal control and the
Ministry of the Interior, the director-general of each department of the
ministry is responsible for the corresponding sector of education. For admin-
istrative purposes, the seventy-one provinces are grouped into twelve educa-
tional regions, each supervised by a regional education officer supervising
provincial and district officers.

In 1961, about 1/2 of all the pupils at the primary and
secondary levels were in private schools. These schools accounted for only
9% of the enrolment at the lower primary stage (Grade 1-4), but in all
other stages (pre-primary, Grade 5-7 and secondary) the private schools
accounted for about half of the total enrolment. It is notable that 50% of
the Grade 5-7 enrolment is in private schools. In the higher secondary stage
(Grade 11-12) as much as 56% of the enrolment was in private schools. The
private institutions charge high fees and cater for the children of
wealthy parents. The others, with less exclusive requirements, provide moderately well-off parents with the opportunity of securing a secondary education
for children who fail to pass the entrance examination for entry to State
schools.

In recent years education has been increasingly seen as a
means of bringing about social and economic development. Unfortunately the
education system is inefficient, wasteful and irrelevant to the mass of the
people who live in rural areas.

Educational System and some educational Problems.

The following is the chart of the present educational system:

\[\text{p. 47, 48}\]
<table>
<thead>
<tr>
<th>Grade Year</th>
<th>Class</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prathom (Primary Classes)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Prathom</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>8</td>
<td>Hathayco Sukta (HS)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>(Secondary Classes)</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>11</td>
<td>Hathayco Sukta</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>13</td>
<td>Entrance to University or continuing technical level</td>
<td>6</td>
</tr>
</tbody>
</table>

Horizontal line means the examination barriers.
Dotted line means the examination barriers that existed earlier but is now being abolished.

CHART SHOWING SCHOOL SYSTEM ACCORDING TO NATIONAL SCHEME OF EDUCATION, 1960

Standard Ages

<table>
<thead>
<tr>
<th>Pre-School Education</th>
<th>Elementary Education</th>
<th>Secondary Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 4 5 6</td>
<td>7 8 9 10 11 12 13</td>
<td>14 15 16 17 18 19</td>
</tr>
</tbody>
</table>

Pre-Compulsory grades

Junior grades
4 yrs.

Senior grades
3 yrs.

Vocational Stream

General Stream

Lower grades
not more than
3 yrs.

Upper grades
not more than
3 yrs.

Higher Education

University or other institutions of Higher Learning

Students may leave at these grades to earn their living.

Source: Ministry of Education, Thailand, The Department of Teacher Training, Its Work and Organization, p. 25
ARTICULATION CHART OF THE THAILAND SCHOOL SYSTEM
BY LEVEL AND TYPE OF COURSES

KINDERGARTEN | ELEMENTARY EDUCATION | SECONDARY EDUCATION | HIGHER EDUCATION

 Kinder | Pre-Primary | Primary | Lower | Upper | Lower | Upper | Universities

garten | Primary | Primary | Secondary | Sec. | Sec. | Technical level

1 2 3 | 4 5 6 7 | 1 2 3 4 5 | 1 2 | 3 4 | 1 2 | 3 4 5 | 6 7 8 9 10 | 11 12 | 13 14 | 15 16 | 17 18 | 19 | 20 21 22 23 24

Modal ages at beginning of school year

Source:
Ministry of Education, Secondary Education, Manpower and Educational Planning in Thailand, Wronski, Stanley F. and Savasti Panich, Kaw

The present pattern of education was adopted in October, 1960. It provides for at least four years of free compulsory education, which is to be gradually extended to seven years as the growing economy of the country permits. Compulsory primary education was established by law in 1921. There was evidence showing that the four-year compulsory attendance law is approximately 90% effective. But the pass rate at the primary level is rather low, and since promotion is not automatic, it is estimated that it takes the average child more than five years to complete the four grades. The first four years of primary education provide a very broad base to the sharply tapering educational pyramid.

There is a high drop-out and repetition rate from one grade to another, only about one-half of those entering grade I reach grade 4. Then there is a big drop again, less than 20% of those completing Grade 4 go on to Grade 5, due to the fact that expansion of compulsory education beyond four years was in its beginning stages and that the provision for further free education was short of the demand, particularly in rural areas. No more than 15% enter secondary school, including vocational secondary school. But it is notable that the retention rate from Grade 5-7 is fairly high, at over 90% continue from one grade to another, and about 90% of those in grade 7 graduate and enter secondary education. About 80% of secondary entrants reach Grade 10 which is a terminal point as well as a step to further education. Entrance to the university follows Grade 12. Two to three years are required for a diploma and from four to six years for the first degree.

These retention rates seem to indicate that the quality of schools and teachers at these levels of primary and secondary education are far more satisfactory and that the selection of students has been effective. However, a large proportion of rural students usually terminate their education at the primary levels. From Grade 10 to 12 there is again a big drop, only about one-third

I. Hayden, Howard, Higher Education and Development in South-East Asia, p. 114
reaching the pre-university stage, these are for the most part composed of children from upper income groups in the municipal area. Finally, no more than 40% of those enrolled in Grade II successfully graduate from secondary school, the pass rate for the final grade being about 60%. Of the graduates, less than one-third enter a university. 1

There is considerable attention to the development of upper secondary vocational education after Grade 10 and 12. Secondary vocational enrolments as a whole form no more than 15% of the total secondary enrolments, at the Grades II & 13 level they account for nearly 50% of the total enrolments, excluding teacher training. 2

Girls form nearly 50% of the enrolment at the lower primary level, the proportion declines to just over 37% by Grade 10, rises again slightly at Grade 11 - 12 to about 40%, and at the university level drops to around 26%. 3 Compared to other countries outside and within the region, these ratios remain high and show remarkable progress towards providing equal educational opportunities for women.

Primary education is composed of two levels, the first stage is Grade 1 - 4, the second step is grades 5 - 7. The secondary education follows that and is also divided into two stages: the lower secondary level (Grades 8 - 10) and the higher or upper secondary level (Grades 11 - 12).

1. Ibid. p. 114
2. Ibid. p. 115
3. Ibid. p. 115
The two grades at the later level were divided into two divisions of science and of arts, more recently a third division was added, it comprises general education with a vocational bias. Secondary education largely follows a general academic pattern. The Joint - Thai - Usom Task Force has suggested the attempt to expand vocational education to provide secondary graduates for employment rather than for further studies. At present, the competitive entrance examination to secondary schools is rigorous. Backward but intelligent pupils coming from primary schools in the rural areas find it more difficult to reach secondary education as most schools are located in the larger towns (in no more than 500 districts out of a total of 4,900)\(^1\), with upper secondary schools established only in major centres. Under the present condition it is estimated that, out of 1,000 students entering Grade 1, about 100 enter Grade 8 and most of them reach Grade 10, though only about 20 enter Grade 12, from which the pass rate in the final examination is around 60\(^\circ\).\(^2\)

Although the general quality of teachers in secondary schools is better than in the primary schools, no more than half hold academic qualifications specially related to secondary - level teaching (Degree and Higher Certificate in Education).\(^3\) The standards of secondary schools are in many cases also affected by the inadequacy of equipment necessary for the teaching process.

\(^{1}\) Hayden, Howard, Higher Education and Development in South - East Asia, p.103
\(^{2}\) Ibid. p. 108
\(^{3}\) Ibid. p. 109
The teaching qualification of a degree level is provided by the Faculty of Education, Chulalongkorn University and three of the Colleges of Education, two in Bangkok and one outside Bangkok. Below the degree level are: the Certificate of Education, a two- or three-year programme after General grade 10 or senior vocational grade 10, offered in teacher-training schools; the Higher Certificate in Education, a two-year programme after Grade 12 or its equivalent (including the Certificate of Education), offered in teacher-training colleges; and the Vocational Secondary Teacher's Certificate with requirements similar to the one mentioned above. At present there are 14 provincial teacher-training schools and 13 provincial teacher-training colleges besides the University and colleges which prepare teachers.

Thai is the medium of instruction at all levels, but English is taught as a second language from Grade 5 onwards and acquire special importance in higher education, where students are expected to be able to consult English language textbooks.

The 1970 census shows that 43.2% of the whole population of 54 million are under 15 years of age and a further 29% are under the age of 30. The population increase in such that by 1980 the proportion of school age will have risen to 46%. Between 1950 and 1971 enrolments in primary schools increased from 2.6 million to 5.7 million, in secondary schools from 126,000 to 601,000 and at university level from 27,000 to 50,000. But although a large number of students enter the schools, only a small percentage proceed to secondary level and an even smaller percentage finish the course.

In 1967 the Unesco Report on Higher Education in Southeast Asia

2. Ibid. p. 40
stated that in Thailand it is estimated that out of 1,000 students in Grade 1, less than half reach Grade 4; of these less than 20% go on to Grade 5 and no more than 15% enter secondary school, including vocational secondary education. Although five years later the situation had slightly improved, less than 60% of those entering the school system reach Grade 4 (i.e. have a chance of achieving permanent literacy); of those who reach Grade 4 less than 30% proceed to Grade 5 and of those only 50% go on to secondary school. Barely 20% of those entering secondary school will finish and of those entering the school system only about 2.6% are likely to reach the higher educational level. This is caused by several reasons, the lack of provision of schools to urban/rural disparities and academic obstacles. The causes of wastage are a mixture of social, economic, and educational factors: the children are required to help in the fields or in the home, the parents are indifferent of the value of education for their children, poverty prevails among the people especially in rural areas, the problems of distance and transport, the schools are poorly staffed or poorly equipped, the teaching is boring and irrelevant, etc. Also there are the wastages of teachers and buildings. 35% of the teachers’ time is absorbed by clerical tasks and only 77% of the potential space in academic secondary schools and 45% of space in vocational schools is adequately used. The traditional examination system is also the cause of this wastage, so in 1966 the government made an experiment with automatic promotion at primary level, but lack of funds and of upper primary schools made the scheme not widely expanded and only 67 schools have been affected.

2. Ibid. p. 41
SECONDARY EDUCATION IN THAILAND

The present system of education in Thailand is the product of many forces and influences which have been forged over many centuries. The first educational system in Thailand was quite similar to that of the monastic and cathedral schools of Medieval Europe, i.e., it had a religious orientation and was centred round the temples. The system was quite informal and offered only limited subject matters. The primary purpose was to provide moral and religious instruction and was designed to train only the men of the society. Vocational training was carried on in the family units. Only the children of the aristocracy could expect to receive training in the arts and other areas associated with "higher education".

This monastic education continued for at least six centuries, from the beginning of the Sukhotai period (1257) up to the beginning of the present dynasty (1668). During this time there were only few important changes in the educational system. The government did not take any active role in education because it was left to the responsibility of the religious leaders, the Buddhist monks assumed the main responsibility for public instruction.

The first modern school was established by King Chulalongkorn in 1871, its purpose was to train boys for office work or civil service. It taught not only reading and writing but also arithmetic and other subjects which were required in government offices.

In 1887 the Department of Education was established and it became a ministry in five years later. It laid the foundation for educational expansion in the early part of the twentieth century.

In 1921 the government introduced the Compulsory Education Act. Between 1921 and 1932 compulsory primary education was gradually extended to cover 80% of the country. During the 1930s attempts were made to extend educational provision even further to educate the people.
The year 1932 marked the beginning of a new political as well as educational period in Thai history. The new revolutionary government determined to build up an independent national economy and education became necessary in a socialist economic planning. Even so the 1951 National Education Plan only defined the four goals of education as training for citizenship, training for democracy, training to develop a sense of national loyalty, and vocational training. In 1960 a new national scheme of education was introduced and it came into action in 1961 and had remained the basic of Thai educational system. Under the scheme the goals remained much the same as those stated in 1951 and free compulsory education up to pre-university level was promised to be fulfilled as soon as the country's economy permits. It is notable that this is a rather vague promise; compulsory education which was introduced without providing the necessary financial provision and without really making sufficient provision for the training of teachers is also meaningless. Several national schemes for education were inaugurated during the period 1930 - 1960.

The present national scheme of education adopted in 1960 put particular stress on meeting the needs of the individuals and of the society. The novel change affected in the secondary schools in the experimental comprehensive-type high school. The curriculum for those schools continues both academic and pre-vocational subjects; it is intended to meet the needs mainly of those who will not continue their education in a college or university but it also not to bar such higher education.

The 1960 National scheme of education stated the 4-3-3-2 plan as the basic pattern for organizing the educational system of Thailand for the elementary and secondary grades. This plan is shown graphically in the chart next pages 46, 47, 48.
The secondary education starts in average age of 14 in Mathayom Suksa I (MS I) and continues through MS 5 or Grade 12 for the academic stream and MS 6 or Grade 13 for the vocational stream. Secondary education is divided into two levels: the lower level consisting of MS 1 - 3, and the upper level consisting of MS 4 - 5 for the academic stream and MS 4 - 6 for the vocational stream. The academic or general stream aims chiefly at general education while the vocational stream aims mainly at giving specific vocational training. Recently there is added a third stream which is the combination of general education and vocational training. But out of a total of 1,600 secondary schools only 20 comprehensive schools have been developed by 1972, so they do not have a profound impact on the national development.

In the general stream, secondary education consists of three lower grades and two upper grades. At the end of Grade 10 boys and girls have acquired knowledge and skills which enable them to earn a living; and at the end of Grade 12, they are able to apply for admission to institutions of higher learning.

In the vocational stream, schools arrange courses of various lengths, from about one to three years depending on the nature of the profession for which people are prepared. Some of the courses may require, as foundation, the education and training received in the three lower grades of the general stream, and may be organised as a continuation of education and training given previously.

Apart from the National Scheme of Education major policy has been outlined in the three five-year National Economic Development Plans (1961 - 66, 1967 - 71, 1972 - 76) and in several planning commission documents showing two assumptions about the purpose of education in Thailand — namely that it should perpetuate Thai culture and that it should at the same time provide the necessary knowledge and skills to understand and meet the present and future demands of the economy. Educational policy aimed at providing education consistent with the economic and social development of the country, expanding facilities to cater for all children of school age, improving educational quality, especially
in the rural areas, improving courses, textbooks, buildings, and teachers, and improving the quality and standards of private schools.

The educational attention of the Third National Development Plan (1972 - 76) concentrated on secondary education since it is at this level that the national manpower requirements will be met. The Third Plan therefore aims at a rapid expansion so that secondary education is available in every district and also aims at improvement of educational quality. In practice terms the Plan aims to expand secondary enrolments to 1,050,000 by 1976 (650,000 in government schools and 420,000 in private schools) i.e. 2% of the national population and to increase the number of teachers from 29,000 to 45,000. The estimate budget was to increase from 703 million bahts in 1972 to 2,039 million bahts by 1976. 

SOCIAL AND PHILOSOPHICAL FOUNDATIONS OF THAI EDUCATION.

In a transitional society such as Thailand, one can fully comprehend any one of the social institutions only by taking into consideration the related structures. An identification of a general characteristic of each of the social institutions -- the family, the government, religion, and the economic system, helps to clarify the meaning and function of the secondary school in Thai culture.

The changing nature of the family in Thai society suggests that the secondary school may be an appropriate place for children to acquire more accurate knowledge and appraisal about themselves, learn social roles and learn to respect others. Moving toward a coeducational institution, the secondary school can provide a natural setting for boys and girls to learn to live and work together under the guidance of qualified teachers. This could lead to the development of a wholesome attitude towards the opposite sex, marriage, and life in general.

The Buddhist way of life is an integral part of the national life

of Thailand. There is a close relationship between the monarchy, the government, the Buddhist religion, and the educational system. The king is the patronage of Buddhism; the schools are required to set aside regular periods for religious instruction. Recently the changing social and economic patterns and practices appear to be opposed to the traditional teaching of Buddhism. This has necessitated an adjustment of instructional methods to harmonise with the secular and spiritual elements in the Thai culture.

Thailand is at present faced with certain economic problems. Its simple agricultural economy is being replaced by a more complex system of production for the world market and industry. A change from a subsistence economy to a commercial economy calls for a better understanding of the principles of marketing, banking, and international trading. Management of the natural resources of the country is also significant for the survival of the national economy.

TEACHER TRAINING IN THAILAND.

At the present there are six levels at which teachers are trained:


2. The Higher Certificate level: two years’ study and training after the Certificate level or after A.S. 5.

3. The Diploma level: a minimum of one year’s training and practice following the completion of at least two years’ study in any 4-5 year course at a university, or two years’ study of the four year course for the Bachelor of Education degree.

4. The Bachelor Degree level: a four years’ study after Grade 12 or after the Certificate of Education in the College of Education or in the University.

5. The Post - Graduate Diploma level: a one year’s study after the Bachelor’s degree.

6. The Master Degree level: a two years’ study after the Bachelor’
a degree. The candidate must have at least one year of teaching experience. The chart comprises all levels of teacher education existing at the present is shown below:

Teachers' Colleges with a 4-year programme leading to a "Diploma in Education". The first 2-year programme leads to a "Certificate in Education".

Teacher Training School with a 2-year Programme leading to a "Certificate in Education".

The College of Education with a regular 4-year programme leading to the B.Ed. degree and further 2-year programme leading to the M.Ed. degree.

1. The Certificate level: People holding the Certificate teach in a primary school.

2. The Higher Certificate level: Teachers who complete this level can teach in the lower secondary schools.

3. The Diploma level: Those who complete this level are qualified to teach both in the primary schools and the secondary schools (from Grade 1 to Grade 10) and also qualified to teach at the kindergarten and the pre-university levels in subjects in which they have specialized.

4. The Bachelor Degree level: Teachers with college degrees are qualified to teach in all primary and secondary schools and also in the pre-university classes of a university. The training at this level aims at a broad academic knowledge with emphasis on certain specialized subjects.

5. The Post-Graduate Diploma and Master Degree levels: The holders of these qualifications are mainly intended for higher teacher training work, service in the Ministry of Education, educational planning, and for research work in education.

There are at the present 17 teachers’ colleges, 6 teacher training schools, the College of Education with its six branches, the Bangkok Institute for Child Study, under the control of the Ministry of Education, and the Faculty of Education in the Chulalongkorn University having the responsibility of teacher training. All the institutions are capable of preparing about 12,000 teachers per year at different levels while there is a need of over 12,000 new teachers per year.

Being realized of the importance of the close relation between schools and communities, the training of teachers as teachers and as community leaders was introduced into using. The UNESCO "Thai-UNESCO Rural Teacher Education Project" (1968-1971) is one of the measures to cope with the situation.

tion Project) was launched in 1956 for this purpose. By 1971, 25,000 teachers had been trained in the scheme on teaching/community development courses, but only 1,734 were actively engaged in the project in 193 rural elementary schools in 512 villages, influencing only 57,500 children and 310,000 rural people.¹

In-service Training Programme in Thailand,

The in-service training programme is offered regularly as follows:

1. The Twilight School for teachers-in-the-field. This programme is in operation all the year round, and is directed to those teachers who want to work for the Bachelor Degree of Education.

2. The Summer School. The summer session is operated every year, also for teachers-in-the-field to carry on their study for the Bachelor of Education Degree, in continuation of the Twilight School.

3. The in-service programme for provincial school superintendents.

4. The in-service programme for teachers and workers in nutrition and food services.

5. The in-service programme in educational measurement for teachers from various institutions at various levels.


Each year over 10,000 in-service teachers are enrolled in refresher courses, and each year about 120,000 in-service teachers take qualifying examinations in various subjects to upgrade their professional status.

Educational research activities are mainly carried out by the Educational Research Department of the College in collaboration with the Bangkok Institution for Child Study, the Ministry of Education, Chulalongkorn University and other agencies.
The Bangkok Institute for Child Study trains prospective teachers and research workers at the Master's degree level with the collaboration of the College of Education, the emphasis of the programme is on developmental psychology.

UTILIZATION OF AUDIO-VISUAL AIDS IN THAILAND.

It can be said generally that the utilization of audio-visual aids in the secondary schools in Thailand is rather a new approach. The only instructional aids which are generally used are chalkboard and simple aids like map, globe, and pictures. Other teaching aids have been recently introduced. This is because the significance of audio-visual aids was only realized by most of the educators in this country. With 80% of the educational budget allocated to teachers' salaries and a further 7.5% allocated to central administration, not much is left for buildings and equipment. Besides, teachers have little idea of the value of audio-visual aids in the teaching process, knowledge about the integration of these aids into the syllabus, knowledge about the preparation of these aids and of manipulating the equipment. Teacher training institutions have only recently included in their syllabus a programme for providing training in the use of audio-visual aids. Only in 1963 the Ministry of Education has established an Educational Materials Centre in Bangkok. The establishment of this Centre mainly help teachers develop audio-visual techniques in their teaching. An educational broadcasting Project was established in 1964, transmitting programmes to all areas. By 1970 over 800,000 pupils in 6,000 schools were studying Thai language, music and social studies from radio broadcasts.

An ETV (educational television) network has also been introduced by the Bangkok - Dhammarat Metropolitan Authority for use in the metropolitan schools, and later extended to other parts of the country, but it was barred by the reason of the lack of sufficient funds. Durr, T. reported that there are very few audio-visual aids in the major-

2. Ibid. p. 44
rity of schools and that very few teachers know how to use them or even they know
they prefer following the textbooks and working only for the annual examination
to the use of audio-visual aids. In rural areas where there is no electricity,
television, filmloops, projectors, and may be even radio are worthless. The utilization
of audio-visual aids in the secondary schools, therefore, is still in its infancy.

From the investigation made by the Educational Materials centre in
the year 1971, it appears that the only teaching aids which all the schools possess
is chalkboard. 97.50% of the schools possess chalkboards as an important device
for teaching. Map is the second important aids which is possessed by 59.83% of
the schools. The general problems in the utilization of audio-visual aids among
secondary schools are lack of proper training for the effective utilization, insuf­ficient
finances for providing teaching aids, lack of service centre, and most of
the schools do not have proper place to store these aids in order to distribute
them conveniently to the teachers. This is the general condition which the author
will take as a basic information and will try to study in broader and deeper details.
CHAPTER - III

The Related Studies
CHAPTER - IX
THE RELATED STUDIES.

The literature from 1941-1947 includes at least 27 status surveys in the field of audio-visual aids. These surveys range from the number and types of projectors available in a given country, state, or nation to the expenditure of funds for audio-visual materials and equipment. The most important of these surveys was the one conducted by the Research Division of the National Education Association in U.S.A. (Audio-Visual Education in City School System), 1946. Other surveys of importance were those of Kauffman (Audio-Visual Programmes in State Universities), 1946; Mo Callum (Audio-Visual Aids in the Secondary Schools of the Southern Association, 1946; Mo Pherson, (The Organization, Administration, and Support of Visual Instruction in California), 1939; Molyneux, (Audio-Visual Aids - A Survey) 1943; and Roberts (Trends in Audio-Visual Instruction in Illinois), 1945. These surveys revealed a widespread growth in all phases of audio-visual field. The amount of equipment and materials available have increased sharply in the schools and universities in the U.S.A. Audio-visual materials are much more widely used in public schools, colleges, and universities. However, expenditure for audio-visual materials and services vary greatly from city to city and from institution to institution.

The following claims for properly used audio-visual materials in teaching situation are supported by the research evidence:
1. They supply a concrete basis for conceptual thinking and hence reduce meaningless word-responses for students.

2. They have a high degree of interest for students.

3. They supply the necessary basis for developmental learning and hence make learning more permanent.

4. They offer a reality of experience which stimulates self-activity on the part of pupils.

5. They develop a continuity of thought, this is especially true of motion pictures.

6. They contribute to growth of meaning and hence to vocabulary development.

7. They provide experiences not easily secured by other materials and contribute to the efficiency, depth, and variety of learning.

Research in the field of audio-visual education indicates that realistic objective materials have genuine value in teaching and that their effectiveness depends on the clarity of the purpose for which they are used, the age of children, the type of children, the type of materials used, the method of use, place of use, and the influence of the teacher who used the materials. Significant gains have been reported in informational learning, retention and recall, thinking and reasoning, activity, interest, imagination, degree of assimilation, and personal growth and expression; and these results have indicated a saving of time both in preparation of work and in completion of minimum essentials.

In a study by the N.E.A. Research Division, 1946 ("Audio-Visual Education in City School Systems"), particular interests were stated by the superintendents regarding the major barriers which kept their own audio-visual programmes from developing. Prominent organizational barriers were "lack of a specially trained director" and "lack of a central Audio-Visual agency". Administrators rated very low the barriers of "indifference" or of "opposition by the board of education or the administration".

In 1953, Califford V. Wait in his doctor's thesis for Indiana University, ("A Study of Audio-Visual Programs in Selected Teachers Colleges in the United States for the Purpose of Identifying and Describing Some Effective Administrative Patterns") studied effective administrative patterns in 8 selected teachers colleges in the U.S.A. and found leadership to be the most important factor in the programme development with a direct administrative channel to and from the office of the president are important influence.

The N.E.A. Research Division's study in 1955 ("Audio-Visual Education in Urban School Districts") also found the need for special trained audio-visual leadership.

The study by Rolland O. Miser, 1952 ("An Exploration of Factors Affecting the Utilization of Audio-Visual Materials") in his Doctor's thesis for Indiana University analyzed why grade 5 and 6 Indiana teachers
took little or no advantage of available audio-visual facilities and services. He found greater use by teachers who projected films in their own classrooms, had taken of instruction, and used democratic teaching practices in their classrooms.

Frederick A. White, 1953 (in "Teacher Competence in the Use of Audio-Visual Materials") studied the problem of teacher competence in the use of audio-visual materials, and Herbert Hite, 1951 (in "A Study of Teacher Educational Methods for Audio-Visual Competency in Washington 1959-47") which is his Doctor's thesis for State C. Washington University) found that teachers who had instruction in audio-visual techniques used more audio-visual materials in their teaching and used them better.

In 1946, Amo De Bernardis and J.W. Brown (in "A study of Teacher Skills and Knowledge Necessary for the Use of Audio-Visual Aids") surveyed 44 directors of audio-visual aid programmes and 200 teachers, supervisors, and administrators as to their opinion of what audio-visual instructional skills and knowledge are most important and should be included in teacher educational courses. His rating was given to the operation of audio-visual equipment and the technique of utilizing audio-visual aids in teaching. Lower ratings were given to production techniques and the provision of proper facilities for audio-visual programmes. High ratings were given, in almost all cases, to those items about which the respondents had knowledge, and the findings did not entirely qualify the conclusion of the authors who indicated that all items
Alizbeth G. Nol and J.P. Leonard, 1947 (in "Foundations for Teacher Education in Audio-Visual Instruction") from the deliberation of a California Committee consisting of audio-visual directors, professors of education, public school administrators, teachers, etc. appointed on a statewide basis by the State Department of Public Instruction, U.S.A., suggested the content of audio-visual courses. There is some disagreement with the De Bernardis and Brown studies both as to content and emphasis. Noel and Leonard included a detailed content, suggested programmes for preservice and in-service education of teachers, and guides for the evaluation of teacher education programmes in audio-visual education.

A comparative study of audio-visual programmes in the public schools was reported by Godfrey in 1965. Started in 1960 with a nationwide survey of 2,927 public school districts, it provided national estimate of the amount of audio-visual equipment and materials available for classroom use in the spring of 1961. Levels and types of use were determined by surveying 572 schools in 247 districts. A follow up study surveyed 238 of the original 247 districts in the winter of 1963-64. The direction and extent of change and the impact of studies was drawn from 2,500 school districts enrolling 150 to 24,949 pupils, stratified by region and size over a three year period. There was a relatively greater increase of audio-visual equipment than an increase in number of pupils and teachers, with the exception of the small schools. The data supported the contention that new techniques appear to be
adopted most readily in "a complex society with expanding populations", and that the greatest hindrances to new media may be the small, stable districts with a restricted curriculum. Godfrey stated that the reasons for nonadoption of a new medium as: (a) more evidence of the value of the medium when the alternative methods were thought to be equally good, (b) the new medium was too expensive and (c) few teachers were trained to use the new technique.

The studies of De Bernardis and Brown¹, Hite², and Zimmerman³ about the problems of knowledge and skills needed by teachers to use audio-visual materials effectively and the content of courses designed to provide such knowledge and skills necessary to make the full use of audio-visual materials reported that many teachers were unprepared to make such use because they lacked the necessary training.


The studies of Hoel and Taylor found that as a whole, state departments of education have increasingly recognized the importance of audio-visual materials in teaching. This is reflected in:

1. The increased number of personnel and services provided.
2. The growing concern for better training of teachers in the use of audio-visual materials.
3. The increased number of the states requiring audio-visual courses for the teachers, administrative and supervisory personnel, and librarians.
4. The general acceptance of audio-visual services and activities as responsibilities of state departments of education.
5. The general enthusiasm and support of the National Defence Education Act which has augmented and extended the services of state departments of education in the new media.

De Kieffer has conducted two studies on teacher training in the United States. The second study indicated that there was an increased emphasis on the training of teachers, over a ten year period in the institutes of higher learning. Furthermore, the number and variety of courses offered by these institutions had sharply increased. In the first study, the greatest

2. Taylor, James W., *A Study of State Programs of Audio-Visual Education with Applications to Nebraska. Doctoral thesis presented at the University of Nebraska, Lincoln; Nebraska, 1951.
deterrent to the use of audio-visual materials in the classroom seemed to be shortage of funds, while in the second study the greatest deterrent was reported to be apathy towards the use of new materials.

An investigation by De Kieffer\(^1\) into the status of teacher training in the audio-visual field presents rather complete information as to the content of introductory audio-visual courses. He reported the following distribution of units or topics; and the percentage of all courses which included each item.

<table>
<thead>
<tr>
<th>Unit or topic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Utilization of materials</td>
<td>97.0</td>
</tr>
<tr>
<td>2. Selection of materials</td>
<td>96.0</td>
</tr>
<tr>
<td>3. Operation of equipment</td>
<td>95.0</td>
</tr>
<tr>
<td>4. Evaluation of materials</td>
<td>93.0</td>
</tr>
<tr>
<td>5. History and Philosophy of audio-visual education</td>
<td>67.0</td>
</tr>
<tr>
<td>6. Administration of Audio-visual programs</td>
<td>78.0</td>
</tr>
<tr>
<td>7. Production of nonphotographic aids*</td>
<td>63.0</td>
</tr>
<tr>
<td>8. Production of photographic aids*</td>
<td>44.0</td>
</tr>
<tr>
<td>9. Radio Script-writing, transcription and recording</td>
<td>35.0</td>
</tr>
<tr>
<td>10. Other types of production*</td>
<td>21.00</td>
</tr>
<tr>
<td>11. Other items</td>
<td>12.0</td>
</tr>
</tbody>
</table>

*Production activities were arranged into four groups marked* for more precise information on these activities.

\(^1\) Ibid. pp. 79-81
The main reason for greater emphasis on the first five items is that all of them pertain to the basic problem i.e. the teachers should be able to select and use materials effectively. The remaining units diminish quite rapidly in frequency of inclusion in courses. Administration also holds a high rank in what is basically a teacher’s area of study. That less emphasis is placed on teacher production-skills is readily understandable. Heavy demands are made on any institution which offers audio-visual training with respect to providing equipment, materials and personnel. Training for production increased that demand sharply and consumed much of students’ and instructors’ time. All these factors will have a profound effect on determining the content of the introductory audio-visual course.

In India, Ansarul Haque Siddiqi, in his master’s thesis for Aligarh Muslim University, 1964 ("Audio-Visual Education in India and Its Application to the Teaching of English") concluded that:

(1) The reasons that hinder the use of audio-visual aids in the schools of India are two: lack of materials in the institutions and lack of interest on the part of teachers.

(2) The importance of preparing simple and inexpensive aids is not sufficiently realised by the teachers.

(3) About the attitude of teachers in using audio-visual aids the author concluded that 20% teachers use them because they attract students’
attention, 10% because they keep students interested, 12% because they
give joy in the lessons, 8% because they give better pictures of the
lessons, 6% because they help in increasing knowledge, 4% because they
help the students to learn successfully, and 2% because they arouse
intellectual ability,

(4) Most of the students like audio-visual aids because they found
both the lessons and aids more interesting.

In Thailand the study by K. Amoradhat, 1967 ("A Study of School
Designs for the Use of Audio-Visual Aids") is worth mentioning. The findings
of this study is summarised below:

(1) The use of audio-visual materials in the teaching process is
appreciated by all schools. But because of certain difficulties, some schools
use them only rarely (25%) while others (75%) use them more often.

(2) The reason for infrequent use of audio-visual materials are
(a) that the teachers do not find time to prepare their own audio-visual
materials (37.5%), (b) the audio-visual aids are too expensive (25%)
(c) the set up of the classrooms is not suited to the proper utilization
of audio-visual aids (25%), (d) the schools do not provide audio-visual
aids to the teachers because lack of funds (12.5%), (e) the teachers think
that the use of these aids is time wasting (12.5%).

(3) The audio-visual aids which are available in all schools are: chalkboard, map, globe, sound amplifier, and tape recorder. The aids which most of the schools possess are pictures, model, graphic material, slide, 16mm. film projector, filmstrips and slide-projector, gramophone player and radio sets.

(4) The simple and inexpensive audio-visual aids are usually prepared in the classrooms by the teachers and the students.

(5) So far as the facilities for the use of audio-visual materials is concerned it was suggested that not many schools have proper facilities for new appliances like the projection implements etc.

In her study, Chaloa Chaturapanich in 1970 ("A Study of the Planning for Audio-Visual Programmes in the Private High Secondary Schools in Bangkok and Phra Nakhon") reported that:

(1) It is recognized by the teachers and the school administrators that the improvement of the audio-visual programme should be given greater importance.

(2) A majority of the private secondary school teachers lack knowledge and skills in the utilization of audio-visual aids in their teaching and they also cannot prepare the instructional aids themselves.

(3) The aids supplied by the schools are insufficient and the conditions of the classrooms are least suitable for the display of the materials available.

In 1971, the Department of Audio-visual Materials, A.V. Aids Centre, Ministry of Education of Thailand conducted a study concerning 126 secondary schools of three different types, government schools, municipal schools, and private schools. The main findings were:

1. In every type of school, the only aids sufficiently available are chalkboards (97%) and maps (59.8%).

2. The non-projected materials are usually prepared by the teachers in the schools.

3. The main problem for the proper utilization of audio-visual aids is lack of training given to the teachers in this area.

4. It was also suggested by the author that the lending service of the aids by the Centre be improved and the second in-service programme for teachers be organised.

A number of studies have been conducted to determine some of the reasons why teachers do not make more use of audio-visual materials in their teaching. The Committee on the utilization of College Teaching Resources of the Fund for the Advancement of Education reported that the inertia of the faculty and the administration was the greatest deterrent. De Kieffer^1 reported that the inertia of the faculty and the administration was the greatest deterrent. De Kieffer^2

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Hubbard, Macomber, and Intyre found additional obstacles such as lack of funds for the purchase of materials, lack of building space, including adequate classroom facilities in which to use audio-visual materials and equipment, lack of trained audio-visual personnel to assist faculty members in the utilization and production of materials, shortage of materials appropriate to the given grade-level and subject matter, the problem of obtaining the correct materials at the proper time and lack of information about sources of materials and services.

Brumbaugh, Wait, Taylor, and Neihard concluded that leadership was the most important characteristic necessary to carry out an effective audio-visual programme at the local or state level.


Hoban concluded that there are five major characteristics of audio-visual materials which act as deterrents to the more rapid extension of their use in the curriculum: (1) Many of these materials are expensive. (2) They are difficult to obtain when they can be used to best advantage; (3) Expensive equipment is required for projection. (4) Such equipment needs manual skills for operation and technical skill for maintenance. (5) Some form of building modification is often necessary for the effective use of this equipment.

A selected number of studies investigated, among other things, the attitude of teachers towards the use of audio-visual materials and towards specific media. Knowlton and Haves\(^1\) reported that 1,400 National Science Foundation Summer Institute participants displayed negative attitude towards conventional audio-visual materials, more as a facet of negativism toward instructionally nonrelevant conditions related to use than as a negativism toward the material itself. In managing audio-visual programmes, utilization barriers should be minimised through better organization and better avenues of communication.

Miller\(^2\), using data processing to identify barriers to audio-visual use, found 1,627 barriers encountered in 1,025 uses. The most frequent barriers in descending order were seating arrangement, screen placement, condition of equipment, electrical cords, room acoustics, lack of preparation time.


operation of equipment, use of screen, focussing, and hall noise.

Centralization and specialization in the administration of the audio-visual programme was found to be positively related to inventory increases. Godfrey cited a study by Tansman and Brown¹, which showed that the amount of money spent for audio-visual equipment decreased progressively when the district had a part-time or a full-time audio-visual co-ordinator. This may be accounted for by the possibility that requirements were at optimum level and co-ordinators were devoting their time to closing gaps in needs.

CHAPTER - IV

Method and Analysis of the Data.
CHAPTER - IV

Method and analysis of the data.

This study aims at finding out:

(1) The attitude of the three important groups in the schools - the school administrators, the teachers and the students towards the use of Audio-Visual aids in schools.

(2) The knowledge and ability of the teachers in the application of audio-visual aids in classroom situations.

(3) The frequency of actual utilization of audio-visual aids in teaching.

(4) The facilities available in the schools that provide audio-visual materials and equipment to their teachers and students.

(5) The facilities available in the classrooms for the display of materials.

(6) The schools' audio-visual service.

In order to know the various aspects of the utilization of audio-visual aids in the secondary schools of Thailand, as referred earlier, the study is mainly a field study based on survey method. To collect data for the study the investigator had to:

1. Contact the Ministry of Education, Bangkok, Thailand and request to send a list of the secondary schools in Thailand, their names, addresses, and the number of students enrolled in each of the schools.
2. Prepare the questionnaires to be sent to principals, teachers, and students.

3. Make final form of the questionnaires to be sent to the selected schools.

4. Lastly analyze the data and their interpretations.

First of all, the investigator contacted a friend in Thailand and requested her to get the list of the schools from the Ministry of Education. The list was received in about a month's time. There are 356 schools in Bangkok and 291 schools in Chonburi out of the 1,766 schools in various provinces throughout Thailand.

From this list the investigator selected 20 schools in Bangkok and Chonburi and 35 schools in the provincial areas having an enrolment between 1,000 and 2,000 students. The schools are selected to represent different areas in Bangkok and Chonburi and in different parts of Thailand.

The following is the list of the schools selected for the study:

**Secondary schools in Bangkok and Chonburi.**

1. Sotrividhya (1,398 students)
2. Satri Mahaprutaram (1,118 students)
3. Sukot Nari (1,360 students)
4. Wat Suthivararam (1,755 students)
5. Tawithapisek (1,498 students)
6. Suan Kulab (1,915 students)
7. Iothin Burana (1,308 students)
8. Intrachai Trade and Industry (1,529 students)
9. Uthen Tawai School of Building Construction (1,953 students)
10. Kantabut (1,521 students)
11. Devoe Suksa  (1,567 students)
12. Satri Prachakorn  (1,613 students)
13. Semacon Rongkruaerd (1,715 students)
14. Paudangwit Pidhaya  (1,796 students)
15. Barana Vidhya  (1,620 students)
16. Bangkok Christian  (1,619 students)
17. Watana Suksa  (1,625 students)
18. Kamapidhaya  (1,709 students)
19. Satri Bamruay Vidhya  (1,777 students)
20. Santavarat  (1,743 students)

Number 1 - 7 are government secondary schools, 8 and 9 are government vocational schools, and number 10 - 20 are private secondary schools.

<table>
<thead>
<tr>
<th>Name of the Province</th>
<th>Name of the School</th>
<th>Type of the School</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chiang Rai</td>
<td>Wattenothaiapayap</td>
<td>government</td>
<td>1,244</td>
</tr>
<tr>
<td>2. Chiang Rai</td>
<td>Yuppharaaj</td>
<td>government</td>
<td>1,430</td>
</tr>
<tr>
<td>3. Lao</td>
<td>Bennang Vidhyalai</td>
<td>government</td>
<td>1,015</td>
</tr>
<tr>
<td>4. Lao Peng</td>
<td>Tripop Vidhya</td>
<td>private</td>
<td>1,470</td>
</tr>
<tr>
<td>5. Uttaradit</td>
<td>Thawaramukoon</td>
<td>government</td>
<td>1,118</td>
</tr>
<tr>
<td>6. Phiamuloke</td>
<td>Duddaruni</td>
<td>government</td>
<td>1,660</td>
</tr>
<tr>
<td>7. Phichit</td>
<td>Benjanarachutthit</td>
<td>government</td>
<td>1,253</td>
</tr>
<tr>
<td>8. Makorn Sawan</td>
<td>Rajiniburana</td>
<td>government</td>
<td>1,567</td>
</tr>
<tr>
<td>9. Uthai Phani</td>
<td>Boonlamm Vidhya</td>
<td>private</td>
<td>1,277</td>
</tr>
<tr>
<td>10. Suphan Buri</td>
<td>Sahnwit</td>
<td>private</td>
<td>1,338</td>
</tr>
<tr>
<td>Name of the Province</td>
<td>Name of the School</td>
<td>Type of the School</td>
<td>Number of Students</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>11. Kanchana Buri</td>
<td>Weeranada</td>
<td>private</td>
<td>1,036</td>
</tr>
<tr>
<td>12. Pathum Thani</td>
<td>Pathawinlai</td>
<td>private</td>
<td>1,634</td>
</tr>
<tr>
<td>13. Sara Buri</td>
<td>Siricat</td>
<td>government</td>
<td>1,740</td>
</tr>
<tr>
<td>14. Prachin Buri</td>
<td>Prachin Rajamun</td>
<td>government</td>
<td>1,119</td>
</tr>
<tr>
<td>15. Sekorn Rajan</td>
<td>Saranari Vidyalai</td>
<td>government</td>
<td>1,932</td>
</tr>
<tr>
<td>16. Chaiyapram</td>
<td>Kawana Vidyaya</td>
<td>private</td>
<td>1,023</td>
</tr>
<tr>
<td>17. Loey</td>
<td>Sukee Penya</td>
<td>private</td>
<td>1,040</td>
</tr>
<tr>
<td>18. Udon Thani</td>
<td>Satri Dechimauthit</td>
<td>government</td>
<td>1,056</td>
</tr>
<tr>
<td>19. Lhon Acm</td>
<td>Satri Kalayanat</td>
<td>government</td>
<td>1,225</td>
</tr>
<tr>
<td>20. Sekorn Pakon</td>
<td>Warividhy</td>
<td>private</td>
<td>1,023</td>
</tr>
<tr>
<td>21. Sekorn Penon</td>
<td>Udorn Vidyaya</td>
<td>private</td>
<td>1,054</td>
</tr>
<tr>
<td>22. Lbon Rachathani</td>
<td>Abhathitharamun</td>
<td>government</td>
<td>1,417</td>
</tr>
<tr>
<td>23. Sri Sekee</td>
<td>Nettaprajek</td>
<td>private</td>
<td>1,068</td>
</tr>
<tr>
<td>24. Suria</td>
<td>Banuamkoon</td>
<td>private</td>
<td>1,563</td>
</tr>
<tr>
<td>25. Chante Buri</td>
<td>Sriboonyanmon</td>
<td>government</td>
<td>1,250</td>
</tr>
<tr>
<td>26. Chol Buri</td>
<td>Chokkanyanuon</td>
<td>government</td>
<td>1,372</td>
</tr>
<tr>
<td>27. Smut Songkram</td>
<td>Jani Vidyya</td>
<td>private</td>
<td>1,655</td>
</tr>
<tr>
<td>28. Phet Buri</td>
<td>Arunphudit</td>
<td>private</td>
<td>1,767</td>
</tr>
<tr>
<td>29. Prachuea Akrikhan Singhanat</td>
<td></td>
<td>private</td>
<td>1,443</td>
</tr>
<tr>
<td>30. Jum Phon</td>
<td>Sarisawatsa</td>
<td>private</td>
<td>1,514</td>
</tr>
<tr>
<td>31. Banong</td>
<td>Vichianmat</td>
<td>government</td>
<td>1,269</td>
</tr>
<tr>
<td>32. Sekorn Srithamraj Kalayan Sri Rithamraj</td>
<td>government</td>
<td>1,253</td>
<td></td>
</tr>
<tr>
<td>33. Krabi</td>
<td>Amat Phanichakoon</td>
<td>government</td>
<td>1,075</td>
</tr>
<tr>
<td>34. Phantaluak</td>
<td>Daetorikamukool</td>
<td>government</td>
<td>1,123</td>
</tr>
<tr>
<td>35. Song Kha</td>
<td>Benjana Rachuthit</td>
<td>government</td>
<td>1,567</td>
</tr>
</tbody>
</table>
Thus the number of the government secondary schools in the provincial areas is 20 and of the private secondary schools is 15.

The total number of the selected schools throughout Thailand is 23 and for the government secondary schools and 26 for the private schools.

The next step was to construct a questionnaire. The aim and the purpose of the study was mainly kept in view while preparing the questionnaire and therefore the following points were undertaken into the preparation of the questionnaire:

1. To know the attitudes of the school administrators, the school teachers, and the students concerning the importance of audio-visual aids.
2. To find out the educational background training and the capacity of the teachers towards the utilization of audio-visual aids.
3. To get an idea of the availability and management of the equipment used in the schools.
4. To find out the facilities the schools provide for the use of audio-visual aids.
5. To know the frequency of the actual utilization of audio-visual aids in the schools.

The questionnaire (originally prepared in Thai language) was sent to a friend in Thailand, who tried it out in a small sample in one school. Certain modifications were necessary after the try out, which was done on receipt of a report from the school mentioned above.

The final form of the questionnaire was then prepared and sent to Thailand to be administered to the principals, teachers and students.

The completed questionnaires were received back after about four months. The data was then tabulated and analysed as shown below.
Table- I: Showing the Qualification of the School- Principals and Teachers who completed the Questionnaires.

From the questionnaire No. I both to the principals and the teachers, this table is made.

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Principals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>16</td>
<td>29.1%</td>
</tr>
<tr>
<td>B.A.</td>
<td>28</td>
<td>50.9%</td>
</tr>
<tr>
<td>Diploma</td>
<td>8</td>
<td>14.5%</td>
</tr>
<tr>
<td>Under Diploma</td>
<td>3</td>
<td>5.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>55</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teachers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>9</td>
<td>3.8%</td>
</tr>
<tr>
<td>B.A.</td>
<td>106</td>
<td>42.1%</td>
</tr>
<tr>
<td>Diploma</td>
<td>3</td>
<td>1.2%</td>
</tr>
<tr>
<td>Higher Certificate in Education</td>
<td>40</td>
<td>16.3%</td>
</tr>
<tr>
<td>Certificate in Education</td>
<td>32</td>
<td>13%</td>
</tr>
<tr>
<td>Ms. 5 *</td>
<td>28</td>
<td>11.4%</td>
</tr>
<tr>
<td>Ms. 3 *</td>
<td>26</td>
<td>11.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>246</td>
<td>100%</td>
</tr>
</tbody>
</table>

This table shows that the largest number of school principals and teachers are graduated B.A. (50.9% and 42.1% respectively). Some of the school principals also hold M.A., Diploma, and below Diploma (Higher Certificate and Certificate Course in Education) qualifications (29.4%, 14.5%, and 5.5% respectively). The teachers besides having B.A. degree also held

* Ms. means Secondary School class
Higher Certificate in Education (16.3%), Certificate in Education (15%), Ms. 5 and Ms. 3 (both 11.4%) and Ms. (3.8%).

Number of schools that responded to the questionnaires.

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Schools</td>
<td>29</td>
<td>52.7</td>
</tr>
<tr>
<td>Private Schools</td>
<td>26</td>
<td>47.3</td>
</tr>
</tbody>
</table>
Table - 2: Showing the number and percentage of principals and teachers who have received education in audio-visual methods.

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals who had attended courses in the use of audio-visual aids.</td>
<td>48</td>
<td>67.3</td>
</tr>
<tr>
<td>Principals who never had any such training.</td>
<td>7</td>
<td>12.7</td>
</tr>
<tr>
<td>Teachers who had training in the use of audio-visual aids.</td>
<td>201</td>
<td>61.7</td>
</tr>
<tr>
<td>Teachers who never had such training.</td>
<td>45</td>
<td>16.3</td>
</tr>
</tbody>
</table>

The table above shows that most of the principals and teachers (67.3% and 61.7% respectively) have had courses in audio-visual education while only 12.7% and 16.3% of principals and teachers respectively had no such training.
Table 3: Showing the sources of knowledge in audio-visual methods of the school principals and teachers.

From the same questionnaire, the source of knowledge in audio-visual methods of both the principals and the teachers is revealed.

<table>
<thead>
<tr>
<th>Sources</th>
<th>Principals</th>
<th>Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>University</td>
<td>21</td>
<td>38.2</td>
</tr>
<tr>
<td>Training College</td>
<td>6</td>
<td>14.6</td>
</tr>
<tr>
<td>In-service training</td>
<td>9</td>
<td>16.4</td>
</tr>
<tr>
<td>Through books and magazines, lectures and conversations with ones who had this knowledge</td>
<td>13</td>
<td>23.7</td>
</tr>
</tbody>
</table>

This table shows that the largest number of the school principals (38.2%) had attended courses of audio-visual education while studying in the universities and the largest number of teachers (36.6%) received this education in the training colleges.

The second largest number of school principals (23.7%) acquired knowledge of audio-visual education through books and magazines, attending lectures or through conversation with those who had a knowledge of these aids. The percentage of teachers who acquired such knowledge by reading books and magazines, by attending lectures and through conversation with others is slightly less (20.7%).
16.4% of the principals and 17.6% of teachers received this knowledge through in-service training. Only 14.6% of principals attended courses in the training colleges.
<table>
<thead>
<tr>
<th>Principals</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below 1</td>
</tr>
<tr>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>As principals</td>
<td>2</td>
</tr>
<tr>
<td>As teachers</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-5</td>
</tr>
<tr>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>As teachers</td>
<td>102</td>
</tr>
</tbody>
</table>

This table shows that the largest number of the school principals responding to the questionnaires have an experience as principals between 1-10 years (50.9%), and have experience in teaching between 10-20 years (36%).

As for the teachers, 41.5% of them have teaching experience from 1-5 years while the percentage of those who have long teaching experience (25-30 years) is only 1.2%.
Table - 5:
Showing the audio-visual aids required by the schools.

<table>
<thead>
<tr>
<th>Information</th>
<th>Number of schools</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The schools which need</td>
<td>55</td>
<td>100</td>
</tr>
<tr>
<td>The schools which often use</td>
<td>35</td>
<td>63.7</td>
</tr>
<tr>
<td>The schools which sometimes use</td>
<td>20</td>
<td>36.3</td>
</tr>
<tr>
<td>The schools which do not use at all</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

This table shows that every school wants to use audio-visual aids but the number of schools which frequently use them is 63.7% while the remaining 36.3% use them only sometimes. However, there is no such school that has not used audio-visual aids at all.
Pzinoipala* vlewpoiiit of 4Mdil9-vifi8UiI

Table - 6:

Showing the principals' attitude towards the use of audio-visual aids.

<table>
<thead>
<tr>
<th>Principals' viewpoint of audio-visual aids</th>
<th>Number of the principals</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>They are not useful</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>They help in making the teachers more effective.</td>
<td>47</td>
<td>65.5</td>
</tr>
<tr>
<td>Preparation of aids is the teacher's duty.</td>
<td>9</td>
<td>15.4</td>
</tr>
<tr>
<td>Supplying the aids in the school's duty.</td>
<td>36</td>
<td>65.5</td>
</tr>
<tr>
<td>A systematic service should be managed by the school.</td>
<td>34</td>
<td>61.8</td>
</tr>
</tbody>
</table>

The responses to item 2 of the questionnaire tabulated above shows that most of the schools principals (65.5%) think that audio-visual aids help in making the teaching more effective. Next to this (65.5%) realize that the supply of audio-visual aids to the teachers is the duty of the school and must be managed as a systematic service for their teachers (61.8%). Only few of the school principals (15.4%) consider it as the teacher's duty to procure audio-visual aids for use in the classroom.
Table - 7:
Showing the principals' opinion of the qualification of teachers while recruiting new teachers.

<table>
<thead>
<tr>
<th>Principals' opinion</th>
<th>Number of principals</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>New teachers should be qualified in the use of audio-visual techniques in teaching.</td>
<td>45</td>
<td>81.8</td>
</tr>
<tr>
<td>Not so necessary, other qualities should be given preference.</td>
<td>9</td>
<td>16.4</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

This table shows that most of the school principals (81.8%) consider that the teacher's qualification in the use of audio-visual techniques in teaching is necessary at the time of selection, while 16.4% do not consider it important and only 1.8% had no opinion or did not express their opinion.
Table - 8:

Showing the number of schools having different audio-visual materials.

(Item 5 of questionnaire No. I)

<table>
<thead>
<tr>
<th>Audio-visual materials</th>
<th>Number of schools that provide</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalkboard</td>
<td>55</td>
<td>100</td>
</tr>
<tr>
<td>Bulletin Board</td>
<td>43</td>
<td>86.1</td>
</tr>
<tr>
<td>Magnetic Board</td>
<td>7</td>
<td>22.7</td>
</tr>
<tr>
<td>Flannel Board</td>
<td>29</td>
<td>52.7</td>
</tr>
<tr>
<td>Real object</td>
<td>46</td>
<td>83.6</td>
</tr>
<tr>
<td>Specimen</td>
<td>43</td>
<td>76.1</td>
</tr>
<tr>
<td>Model</td>
<td>42</td>
<td>76.4</td>
</tr>
<tr>
<td>Museum or collection</td>
<td>15</td>
<td>25.1</td>
</tr>
<tr>
<td>Picture</td>
<td>48</td>
<td>97.3</td>
</tr>
<tr>
<td>Map</td>
<td>51</td>
<td>92.4</td>
</tr>
<tr>
<td>Globe</td>
<td>50</td>
<td>90.1</td>
</tr>
<tr>
<td>Graphic Materials</td>
<td>35</td>
<td>66.5</td>
</tr>
<tr>
<td>Slides</td>
<td>32</td>
<td>58.2</td>
</tr>
<tr>
<td>Filmstrips</td>
<td>20</td>
<td>36.4</td>
</tr>
<tr>
<td>Tape for recording</td>
<td>44</td>
<td>80</td>
</tr>
<tr>
<td>Microfilm</td>
<td>7</td>
<td>12.7</td>
</tr>
<tr>
<td>Motion Pictures</td>
<td>26</td>
<td>50.1</td>
</tr>
<tr>
<td>Facilities for Fieldtrip</td>
<td>29</td>
<td>52.7</td>
</tr>
<tr>
<td>Raw materials for the preparation of audio-visual aids</td>
<td>27</td>
<td>49.1</td>
</tr>
</tbody>
</table>

This table shows that every school provides chalkboards. Most of them (92.7% and 90.9% respectively) provide maps and globes. Next to
these are pictures (87.3 %), real objects (83.6 %), tape recordings or tape for recording (80 %), bulletin boards and specimens (78.1 %), models (76.4 %), and graphic materials (69.5 %). About half of the schools provide slides (59.2 %), flannel boards and facilities for fieldtrip (52.7 %), motion pictures (50.9 %), and raw materials for preparing audio-visual aide (49.1 %). Only few of them provide filmstrips (36.4 %), museums or collections (27.3 %), language laboratories (21.8 %), magnetic boards and microfilms (12.7 %).
Table - 91

Showing the number of schools having audio-visual equipment.

<table>
<thead>
<tr>
<th>Audio-visual equipment</th>
<th>number of schools that provide</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slides and filmstrips projector</td>
<td>31</td>
<td>56.4</td>
</tr>
<tr>
<td>Microfilm projector</td>
<td>6</td>
<td>10.9</td>
</tr>
<tr>
<td>Motion picture projector</td>
<td>31</td>
<td>56.4</td>
</tr>
<tr>
<td>Opaque projector</td>
<td>13</td>
<td>23.6</td>
</tr>
<tr>
<td>Overhead projector</td>
<td>8</td>
<td>14.6</td>
</tr>
<tr>
<td>Tape recorder and player</td>
<td>44</td>
<td>63.6</td>
</tr>
<tr>
<td>Camera</td>
<td>35</td>
<td>63.6</td>
</tr>
<tr>
<td>Gramophone</td>
<td>45</td>
<td>61.8</td>
</tr>
<tr>
<td>Radio set</td>
<td>41</td>
<td>74.5</td>
</tr>
<tr>
<td>Television set</td>
<td>5</td>
<td>9.1</td>
</tr>
<tr>
<td>Teaching machine</td>
<td>10</td>
<td>16.2</td>
</tr>
<tr>
<td>Language laboratory</td>
<td>10</td>
<td>16.2</td>
</tr>
<tr>
<td>Automatic classroom</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Responses to item 6 of the same questionnaire shows that the schools provide gramophones (61.8 %), tape recorders and players (80 %), radio sets (74.5 %), and cameras (63.6 %). About half of the schools provide slide and filmstrip projectors (56.4 %), motion picture projectors (56.4 %). Only few of them provide opaque projectors (23.6 %), teaching machines and language laboratories (16.2 %), overhead projectors (14.6 %), microfilm projectors (10.9 %), and television sets (9.1 %), and none provide automatic classrooms.
Table - 10:

Showing the number and percentage of schools providing various facilities for the preparation and use of audio-visual aids in the classrooms.

( Item 10 of questionnaire No. 1 )

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Provided</th>
<th></th>
<th>Not provided</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------</td>
<td>-------</td>
<td>--------------</td>
<td>-------</td>
</tr>
<tr>
<td>Chalkboard</td>
<td>55</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bulletin board</td>
<td>42</td>
<td>76.4</td>
<td>13</td>
<td>23.6</td>
</tr>
<tr>
<td>Display area</td>
<td>24</td>
<td>43.6</td>
<td>31</td>
<td>56.4</td>
</tr>
<tr>
<td>Storage</td>
<td>25</td>
<td>45.5</td>
<td>30</td>
<td>54.5</td>
</tr>
<tr>
<td>Teacher's preparation area</td>
<td>29</td>
<td>52.7</td>
<td>26</td>
<td>47.3</td>
</tr>
<tr>
<td>Light controlling devices</td>
<td>21</td>
<td>38.2</td>
<td>34</td>
<td>61.8</td>
</tr>
<tr>
<td>Moving screen</td>
<td>27</td>
<td>49.1</td>
<td>23</td>
<td>50.9</td>
</tr>
<tr>
<td>Electricity output</td>
<td>43</td>
<td>87.3</td>
<td>7</td>
<td>12.7</td>
</tr>
<tr>
<td>Electricity switch</td>
<td>49</td>
<td>83.1</td>
<td>6</td>
<td>16.9</td>
</tr>
<tr>
<td>Sound controlling</td>
<td>8</td>
<td>14.6</td>
<td>47</td>
<td>85.4</td>
</tr>
<tr>
<td>Light bulb</td>
<td>51</td>
<td>92.7</td>
<td>4</td>
<td>7.3</td>
</tr>
<tr>
<td>Students' working area</td>
<td>22</td>
<td>40</td>
<td>33</td>
<td>60</td>
</tr>
<tr>
<td>Sink</td>
<td>27</td>
<td>49.1</td>
<td>23</td>
<td>50.9</td>
</tr>
<tr>
<td>Natural ventilation system</td>
<td>54</td>
<td>93.1</td>
<td>1</td>
<td>6.9</td>
</tr>
<tr>
<td>Mechanical ventilation system</td>
<td>8</td>
<td>14.6</td>
<td>47</td>
<td>85.4</td>
</tr>
<tr>
<td>Amplifier</td>
<td>25</td>
<td>45.5</td>
<td>30</td>
<td>54.5</td>
</tr>
<tr>
<td>Books for hanging maps, charts,</td>
<td>44</td>
<td>80</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>screen, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projecting area</td>
<td>24</td>
<td>43.6</td>
<td>31</td>
<td>56.4</td>
</tr>
<tr>
<td>Projection area</td>
<td>27</td>
<td>49.1</td>
<td>23</td>
<td>50.9</td>
</tr>
</tbody>
</table>

This table shows that all schools provide chalkboard. Most of
them provide natural ventilation system (96.1%), light bulbs (92.7%), electricity switch (89.1%), electricity outputs (87.3%), hooks for hanging maps, charts, etc. (88%), and bulletin boards (76.4%). About half of them provide teacher's preparation area in the classrooms (52.7%), sinks, movable screens and projection areas (49.1%), amplifiers (45.5%), display areas and projecting areas (43.6%), and students' working areas other than their desks and chairs (40%). Only few provide light control devices (33.2%), sound control and mechanical ventilation system (14.6%).
Table - II 1

<table>
<thead>
<tr>
<th>Source</th>
<th>Number of schools</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of the school's budget</td>
<td>21</td>
<td>35.2</td>
</tr>
<tr>
<td>From the financial assistance provided by other sources</td>
<td>3</td>
<td>5.5</td>
</tr>
<tr>
<td>Teachers' own contribution</td>
<td>31</td>
<td>56.4</td>
</tr>
<tr>
<td>Borrowing from sources other than the school</td>
<td>6</td>
<td>11</td>
</tr>
</tbody>
</table>

This table shows that about half of the schools provide audio-visual aids to their teachers from teachers' own expenses (56.4%). 38.2% of them provide audio-visual aids from the school budget. Some of them borrow these aids from other sources (11%), and few get the financial assistance from other sources such as foreign, private, commercial and business organizations (5.5%).
Table - II:

Showing the teachers’ opinion in the use of audio-visual aids.

<table>
<thead>
<tr>
<th>Advantages.</th>
<th>Number of teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplifies and makes the teaching - learning process easier.</td>
<td>162</td>
<td>65.9</td>
</tr>
<tr>
<td>Makes teaching more effective.</td>
<td>79</td>
<td>32.1</td>
</tr>
<tr>
<td>Adds more interest in the lesson.</td>
<td>111</td>
<td>45.1</td>
</tr>
<tr>
<td>Gives students better understanding of the topic.</td>
<td>95</td>
<td>30.5</td>
</tr>
<tr>
<td>Helps in imparting more knowledge.</td>
<td>65</td>
<td>26.4</td>
</tr>
</tbody>
</table>

From the responses to item 2 of questionnaire No. II sent to the teachers, it is evident that the largest number of the teachers (65.9%) are of the opinion that audio-visual aids simplify teaching and make the teaching-learning process easier. 45.1% think that audio-visual aids add more interest in the lessons, 32.1% consider audio-visual aids as making the teaching more effective, 30.5% state that audio-visual aids give better understanding to the students, and 26.4% of the teachers feel that audio-visual aids help in imparting more knowledge to the students during the same period.
The use of audio-visual aids is:

<table>
<thead>
<tr>
<th>Number of teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time wasting.</td>
<td>4</td>
</tr>
<tr>
<td>Time wasting but worthwhile.</td>
<td>134</td>
</tr>
<tr>
<td>Time - saving.</td>
<td>67</td>
</tr>
<tr>
<td>The cause of disorderliness in the classroom.</td>
<td>15</td>
</tr>
<tr>
<td>Making the students bored.</td>
<td>1</td>
</tr>
<tr>
<td>Suitable to be used outside the classroom.</td>
<td>10</td>
</tr>
<tr>
<td>Suitable for use outside the class period.</td>
<td>15</td>
</tr>
<tr>
<td>Suitable for use in the classroom and in the class period.</td>
<td>98</td>
</tr>
</tbody>
</table>

Table - 15

Showing the teachers' opinion about the use of audio-visual aids.

This table shows the attitudes of the teachers towards the use of audio-visual aids. 54.4% of them consider audio-visual aids as time-wasting but worthwhile to use, while 35.4% think that they are time-saving. 39.9% of the respondents have expressed that audio-visual aids should be used in the classroom and in the class period. Very few of the teachers are of the opinion that audio-visual aids should be used outside the class period (6.1%) and outside the classroom (4%). Also very few think that audio-visual aids create disorderliness in the classroom (6.1%), are time-wasting (1.6%), and make the students bored (0.4%).
Table – I4:
Showing the reasons for the use of audio-visual aids by the teachers.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio-visual aids will make teaching more effective</td>
<td>175</td>
<td>71.9</td>
</tr>
<tr>
<td>Awareness of their advantages</td>
<td>88</td>
<td>35.8</td>
</tr>
<tr>
<td>Because other teachers use them</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Ability to prepare such aids</td>
<td>31</td>
<td>12.6</td>
</tr>
<tr>
<td>Audio-visual aids are already available in the school</td>
<td>72</td>
<td>21.1</td>
</tr>
<tr>
<td>A particular subject must be taught with the help of audio-visual aids</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>Other reasons</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

The above table is based on the responses to item 4 of questionnaire No. II. It shows that most of the teachers use audio-visual aids because they expect that such aids will make their teaching more effective (71.9%). The number of the teachers who use audio-visual aids because they are aware of their advantages is 35.8%. 21.1% of them use such aids because they are already available in the schools (21.1%). Only few use them due to their ability to prepare them (12.6%), because the particular subjects they teach demand the use of such aids (8.1%), and because other teachers use them (0.9%). The other reasons mentioned by 4% of the teachers are that they have learnt about the audio-visual aids so they want to use them; audio-visual aids are used to relieve the students of boredom, to make the students more interested in learning, to save time in explaining, and they are aware of the advantages of audio-visual aids in bringing home to the pupils some scientific facts.
Table - 15 :

Showing the reasons for not using audio-visual aids by the teacher respondents.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of knowledge of such aids and their utilization.</td>
<td>12</td>
<td>4.8</td>
</tr>
<tr>
<td>The school does not or cannot provide them.</td>
<td>48</td>
<td>19.5</td>
</tr>
<tr>
<td>The school does not encourage their use.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Audio-visual aids are not available from any source.</td>
<td>37</td>
<td>15</td>
</tr>
<tr>
<td>Lack of time to prepare aids.</td>
<td>60</td>
<td>24.4</td>
</tr>
<tr>
<td>Lack of financial support.</td>
<td>30</td>
<td>12.2</td>
</tr>
<tr>
<td>A feeling of disadvantage.</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>No other teacher uses them.</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Students not interested when such aids are used.</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>Lack of facilities for proper use.</td>
<td>29</td>
<td>11.8</td>
</tr>
<tr>
<td>Lack of enough time because of heavy load of content to be taught.</td>
<td>45</td>
<td>18.4</td>
</tr>
<tr>
<td>The school distribution system is poor.</td>
<td>33</td>
<td>13.4</td>
</tr>
<tr>
<td>The subject taught does not need any audio-visual aids (in his opinion)</td>
<td>8</td>
<td>3.2</td>
</tr>
</tbody>
</table>

This table shows that a large number of teachers (24.4%) do not use audio-visual aids because they have no time to prepare them. 19.5% of teachers do not use such aids because the schools do not provide such aids to them. 18.4% of teachers mentioned the reason of having inadequate time due to the heavy load of the content of the subjects taught. The audio-visual aids
are not available from any source. The poor distribution system of audio-
visual aids managed by the schools, lack of financial support to prepare
their own aids when they are not available from other sources, and lack of
facilities for the proper use, are other reasons of not using of audio-visual
aids responded by 15 %, 13.4 %, 12.2 %, and 11.8 % of teachers respectively.
Only few mentioned the reason that the lack of knowledge in the use of audio-
visual aids (4.8 %), no need by the particular subjects they teach (3.2 %).
Other reasons given are of no significance. However, no one has stated that
there is no encouragement from the schools.
Table - 16:
Showing the teachers' opinion about the improvement in the utilization of audio-visual aids in the schools.

<table>
<thead>
<tr>
<th>Audio-visual aids will be used more frequently if there is:</th>
<th>Number of teachers giving the opinion</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better provision of audio-visual aid and facilities.</td>
<td>154</td>
<td>62.6</td>
</tr>
<tr>
<td>Better distribution system.</td>
<td>108</td>
<td>43.1</td>
</tr>
<tr>
<td>Proper condition of the classroom.</td>
<td>404</td>
<td>42.3</td>
</tr>
<tr>
<td>More time for the preparation of the proper use of audio-visual aids in the classroom.</td>
<td>62</td>
<td>25.2</td>
</tr>
<tr>
<td>More time to prepare audio-visual materials.</td>
<td>67</td>
<td>27.3</td>
</tr>
<tr>
<td>Better understanding and knowledge in the use of audio-visual aids in teaching.</td>
<td>74</td>
<td>30.1</td>
</tr>
<tr>
<td>More interest shown by the students.</td>
<td>102</td>
<td>41.5</td>
</tr>
</tbody>
</table>

This table shows that most of the teachers (62.6%) think that they will use audio-visual aids more frequently if the schools can provide such aids and facilities to them better than what they do now. 43.1% of the teachers will use these aids more frequently if their schools have better distribution system. The other needs such as suitable condition of the classrooms, more interest on the part of the students, better understanding and knowledge in the use of audio-visual aids, more time to prepare aids, and more time to prepare themselves are suggested by 42.3%, 41.5%, 30.1%, 27.3%, and 25.2% of the teachers respectively.
Table I

Showing the audio-visual materials provided by the schools and / or prepared by the teachers. (Figures are in percentage of the number of the teachers responding to the questionaires.

<table>
<thead>
<tr>
<th>No.</th>
<th>Audio-visual materials</th>
<th>Provided by the school</th>
<th>Prepared by the teachers</th>
<th>No provision or preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chalkboard</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Flannel board</td>
<td>42.7</td>
<td>9.8</td>
<td>47.5</td>
</tr>
<tr>
<td>3.</td>
<td>Bulletin board</td>
<td>47.6</td>
<td>7.8</td>
<td>44.6</td>
</tr>
<tr>
<td>4.</td>
<td>Real object</td>
<td>33.3</td>
<td>39</td>
<td>27.7</td>
</tr>
<tr>
<td>5.</td>
<td>Specimen</td>
<td>37.9</td>
<td>24.6</td>
<td>37.3</td>
</tr>
<tr>
<td>6.</td>
<td>Sand table</td>
<td>15.5</td>
<td>10.6</td>
<td>73.9</td>
</tr>
<tr>
<td>7.</td>
<td>Model</td>
<td>41.1</td>
<td>7.8</td>
<td>51.1</td>
</tr>
<tr>
<td>8.</td>
<td>Museum or collection</td>
<td>26.4</td>
<td>14.2</td>
<td>59.4</td>
</tr>
<tr>
<td>9.</td>
<td>Picture and photograph</td>
<td>36.2</td>
<td>41.4</td>
<td>22.4</td>
</tr>
<tr>
<td>10.</td>
<td>Map</td>
<td>56.1</td>
<td>4.5</td>
<td>39.4</td>
</tr>
<tr>
<td>11.</td>
<td>Globe</td>
<td>70.5</td>
<td>0</td>
<td>29.7</td>
</tr>
<tr>
<td>12.</td>
<td>Graphic materials</td>
<td>41.4</td>
<td>12.6</td>
<td>46</td>
</tr>
<tr>
<td>13.</td>
<td>Puppet</td>
<td>13.9</td>
<td>5.7</td>
<td>80.4</td>
</tr>
<tr>
<td>14.</td>
<td>Diorama</td>
<td>9.8</td>
<td>5.7</td>
<td>84.5</td>
</tr>
<tr>
<td>15.</td>
<td>Recording</td>
<td>60.9</td>
<td>21.9</td>
<td>72</td>
</tr>
<tr>
<td>16.</td>
<td>Slides</td>
<td>38.7</td>
<td>3.7</td>
<td>57.6</td>
</tr>
<tr>
<td>17.</td>
<td>Filmstrip</td>
<td>27.7</td>
<td>1.6</td>
<td>70.7</td>
</tr>
<tr>
<td>18.</td>
<td>Motion pictures</td>
<td>34.1</td>
<td>5.7</td>
<td>60.2</td>
</tr>
</tbody>
</table>
This table shows the responses of the teachers to item No. 5 (a, b) of the questionnaire. The responses suggested that the schools provide chalkboards (100%), globes (70.3%), tape recordings (60.9%), and maps (36.1%). Less than half of the teachers mentioned the provision of other types of audio-visual aids such as bulletin boards (47.6%), flannel boards (42.7%), graphic materials (41.4%), models (41.1%), slides (39.7%), specimens (37.9%), pictures (37.2%), motion pictures (34.1%), and real objects (33.3%). Less than 50% mentioned that the schools provide filmstrips, and school museum and collections (27.7% and 26.4% respectively). Sand tables, puppets, and dioramas are mentioned by only few teachers (15.5%, 13.9%, and 9.8% respectively).
Table - EP 1
Showing the sources of expenditure for the preparation of audio-visual aids.

<table>
<thead>
<tr>
<th>Sources</th>
<th>Number of the teachers who use the source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher's own expense (one person).</td>
<td>157</td>
<td>63.9</td>
</tr>
<tr>
<td>School's expense.</td>
<td>76</td>
<td>30.9</td>
</tr>
<tr>
<td>Contributed both by the school and other teachers.</td>
<td>24</td>
<td>9.8</td>
</tr>
<tr>
<td>Contributed by the students.</td>
<td>36</td>
<td>14.6</td>
</tr>
<tr>
<td>Other sources.</td>
<td>28</td>
<td>10.6</td>
</tr>
<tr>
<td>Shared by all the teachers.</td>
<td>15</td>
<td>6.1</td>
</tr>
</tbody>
</table>

This table shows that the important source for meeting the expenses for the preparation of audio-visual aids in the schools is the teachers' own contribution who prepare and use those audio-visual aids (63.9%). Only 30.9% of the teachers mentioned that the expenses are met by the schools. 14.6% of these teachers are supported by their students in preparing audio-visual aids. The number of teachers who receive finances from other sources and from the schools and other teachers are 10.6% and 9.6% respectively. The expenses shared by all the teachers in the schools or all the teachers of a particular subject is 6.1%.  
Table 19:
Showing places for the preparation of audio-visual aids.

<table>
<thead>
<tr>
<th>Source</th>
<th>Number of respondents using the source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student's home</td>
<td>6</td>
<td>1.6</td>
</tr>
<tr>
<td>Teacher's home</td>
<td>142</td>
<td>57.8</td>
</tr>
<tr>
<td>Teacher's rest room</td>
<td>98</td>
<td>31.7</td>
</tr>
<tr>
<td>School's workshop</td>
<td>41</td>
<td>16.7</td>
</tr>
</tbody>
</table>

This table shows that the place which most of the teachers use for the preparation of audio-visual aids is the teacher's own residence (57.8%). 31.7% of the teachers prepare audio-visual aids in their rest rooms in the school, 16.7% of the respondents prepare them in the school workshop, and 1.6% at the student's home. Some of the teachers pointed more than one place.
Table 20

Showing the teachers' experience in audio-visual aids and the frequency of their use.

<table>
<thead>
<tr>
<th>No.</th>
<th>Audio-visual aids</th>
<th>Experience</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>never know</td>
<td>heard of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>seen</td>
<td>used</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very often</td>
<td>fairly often</td>
</tr>
<tr>
<td>1.</td>
<td>Chalk board</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Magnetic board</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Flannel board</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Bulletin board</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Field trip</td>
<td>6.5</td>
<td>15.5</td>
</tr>
<tr>
<td>6.</td>
<td>Real object</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>7.</td>
<td>Specimen</td>
<td>5.5</td>
<td>3.5</td>
</tr>
<tr>
<td>8.</td>
<td>Sound table</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>9.</td>
<td>Model</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>10.</td>
<td>Museum or collection</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>11.</td>
<td>Picture</td>
<td>0</td>
<td>4.5</td>
</tr>
<tr>
<td>12.</td>
<td>Poster</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>13.</td>
<td>Map</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td>14.</td>
<td>Globe</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>Graphic materials</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>16.</td>
<td>Dramatization</td>
<td>10.5</td>
<td>15</td>
</tr>
<tr>
<td>17.</td>
<td>Demonstration</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>18.</td>
<td>Display</td>
<td>14</td>
<td>9.5</td>
</tr>
<tr>
<td>19.</td>
<td>Puppet</td>
<td>19.5</td>
<td>16</td>
</tr>
<tr>
<td>20.</td>
<td>Diorama</td>
<td>49.5</td>
<td>18</td>
</tr>
<tr>
<td>21.</td>
<td>Gramophone</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>22.</td>
<td>Tape recording</td>
<td>7.5</td>
<td>3</td>
</tr>
<tr>
<td>23.</td>
<td>Slides</td>
<td>14.5</td>
<td>7</td>
</tr>
<tr>
<td>24.</td>
<td>Filmstrip</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>25.</td>
<td>Microfilms</td>
<td>35.5</td>
<td>19.5</td>
</tr>
</tbody>
</table>
The above table based on the responses to item 3 (a, b) of the questionnaire reveals that all the teachers have used chalkboards. The other audio-visual aids which are used by a large number of teachers are picture (69.5%), posters and maps (58.5%), specimens (56.5%), real objects (64%), and fieldtrips (51%).

Less than half of the teachers use globes (47%), demonstration (45%), tape recordings (45%), gramophones (44.5%), graphic materials (35.5%), bulletin boards (35%), flannel boards (34%), models (33.5%), displays (31%), dramatizations (29.5%), slides (29.5%), radio sets (29%), museum or collections (28.5%), fieldtrips (22%), and field tables (21.5%).

Less than 20% of the teachers use motion pictures (14%), opaque projectors (14%), puppets (12.5%), dioramas (9%), language laboratories (8%), microfilms (6.5%), teaching machines (6.5%), overhead projectors (5.5%) and televisions (5.5%).

These figures show that most of the teachers use chalkboards and 87.5% of them use them very often. The next frequently used material is pictures, which is used by only 22.5% of the teachers. Other aids are only
rarely used.

The audio-visual aids which are scarcely known to the teachers are magnetic board (known to only 50% of teachers), diorama and microfilm.
Table - 21:
Showing the teaching methods in the classrooms.

<table>
<thead>
<tr>
<th>Method</th>
<th>Number of students who responded</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional method</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>Combined with other activities</td>
<td>187</td>
<td>46.7</td>
</tr>
<tr>
<td>(Singing, dramatizing, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With other materials (Pictures,</td>
<td>313</td>
<td>78.2</td>
</tr>
<tr>
<td>specimens, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With slides, motion pictures, etc.</td>
<td>144</td>
<td>36</td>
</tr>
<tr>
<td>With radio, television, tape recording, gramophone</td>
<td>123</td>
<td>30.8</td>
</tr>
<tr>
<td>With demonstration</td>
<td>163</td>
<td>40.8</td>
</tr>
<tr>
<td>With excursion</td>
<td>151</td>
<td>37.8</td>
</tr>
</tbody>
</table>

This table shows the number of students responding to questionnaire No. III. All of them learn through the conventional method. Besides this method, the most usual method used by the teachers are through using traditional audio-visual aids (78.2%), through activities (46.7%), through demonstration (40.8%), through excursion (37.8%), through slides, filmstrips, and motion pictures (36%), and through radio, television, tape recordings, and gramophones (30.8%).
Table-22:

<table>
<thead>
<tr>
<th>Method</th>
<th>Number of students who like</th>
<th>Number of students who dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>%</td>
</tr>
<tr>
<td>Oral explanation</td>
<td>68</td>
<td>17</td>
</tr>
<tr>
<td>Writing words or sentences on the chalkboard</td>
<td>335</td>
<td>63.8</td>
</tr>
<tr>
<td>Explanation with pictures drawn on chalkboard</td>
<td>327</td>
<td>61.8</td>
</tr>
<tr>
<td>Writing or drawing on chalkboard by students</td>
<td>248</td>
<td>62</td>
</tr>
<tr>
<td>Using audio-visual aids</td>
<td>385</td>
<td>95.8</td>
</tr>
<tr>
<td>Demonstration</td>
<td>371</td>
<td>92.8</td>
</tr>
<tr>
<td>Field - trips</td>
<td>364</td>
<td>91</td>
</tr>
<tr>
<td>Excursion to museums</td>
<td>365</td>
<td>91.1</td>
</tr>
<tr>
<td>Using projections</td>
<td>360</td>
<td>90</td>
</tr>
<tr>
<td>Using television</td>
<td>326</td>
<td>81.5</td>
</tr>
<tr>
<td>Student participation in activities</td>
<td>262</td>
<td>65.5</td>
</tr>
</tbody>
</table>

This table shows that nearly every student enjoys learning when audio-visual aids are used by the teacher (95.8%). The second largest number like demonstration (92.8%). Next to these are those who like excursion...
to museums (91.1%), field-trip (91%), projection (90%), teacher's writing of words or sentences during oral explanation (83.8%), drawing pictures by the teacher (61.8%), learning through television (81.5%), students' participation in activities (65.5%), and writing or drawing by students themselves (62%). Only 17% like oral explanation alone.
Table -25:

Showing the students' attitude towards the utilization of audio-visual aids.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bored</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Excited and happy</td>
<td>295</td>
<td>73.8</td>
</tr>
<tr>
<td>More interested</td>
<td>341</td>
<td>65.2</td>
</tr>
<tr>
<td>Consider the time to have been wasted</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Unwilling or lazy to participate</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Eager to participate in the lesson</td>
<td>257</td>
<td>66.8</td>
</tr>
<tr>
<td>Feeling that the lesson is well understood</td>
<td>347</td>
<td>86.8</td>
</tr>
<tr>
<td>Confused and find the lesson difficult to understand</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>

The above table based on the responses to item 3 of the questionnaire sent to the students shows that the largest number of the students feel that the lesson is well understood when explained with the help of audio-visual aids (86.8%). 82.5% of them have expressed the opinion that audio-visual aids make them more interested in the lessons. 73.8% feel excited and happy when the teachers use audio-visual aids, and 66.8% are eager to participate in the lesson when audio-visual aids are used. Only a small percentage of the respondents have shown an unsympathetic attitude towards audio-visual aids. 10% feel confused and find the lessons difficult to understand when audio-visual aids are used, 5% feel that the time spent in the use of audio-visual aids is wasted, 4% feel unwilling or lazy to participate in the lessons, and only 3% feel bored when audio-visual aids are used in the teaching-learning process.
CHAPTER V

Interpretation of the Data.
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Interpretation of the Data.

(1) From the investigation of the knowledge background, the teaching experience and the experience and knowledge in audio-visual techniques, it is evident that the majority of the principals of the secondary schools in Thailand have their education up to the B.A. level. Their experience as a school principal is under 10 years, and their experience in teaching is between 10-20 years. It can be seen that generally the principals of the secondary schools in Thailand have sufficient teaching experience but have less experience of administration as a school principal. Their educational background is fairly high. Speaking of their knowledge in audio-visual education, it is clear that most of them have formal training in the use of audio-visual materials, but still a number of them have no formal training. Reading from books and magazines or listening casual lectures or discussions with other is not a sufficiently sound foundation for their understanding and for the administration and organisation of audio-visual programmes needed for the schools. They should have a good training in audio-visual techniques and uses in classroom teaching.

As for the teachers, in general they have a fairly high degree up to B.A. level and most of them had offered audio-visual courses at the teachers' training institutions. It is heartening to note that training in audio-visual techniques is one of the selective courses in every teachers' training college in Thailand. It will however, be more advantageous if it is made a compulsory subject for every student-teacher. As for their teaching experience, the responses to the questionnaire shows that most of the teachers in the secondary schools in Thailand have an average teaching experience of less than 5 years showing that majority of them are young and possess less experience of secondary school teaching.
(2) Table - 21 gives the responses of the students regarding the methods used by teachers in the classrooms. It shows that the students still learn through the conventional method, that is by listening to the teachers' lectures or oral explanations and by reading textbooks. At the same time the students reported that the teachers also use other methods of teaching such as they use audio-visual materials (73.2%), activities (46.7%), demonstrations (40.8%), excursions (37.5%), projections (35%), and audio aids (30.8%). This can be explained that generally the conventional method is the main method of teaching for most of the subjects, but some of the teachers employ other means also to make their teaching more meaningful and effective. This however, may not be very common. Audio-visual materials such as pictures and specimens are used most frequently. Activities like singing and dramatization come next, and audio aids are used least frequently.

But when Table - 5 is analysed, it can be seen that though the teachers usually use the conventional method of teaching, they are not willing to stick to it. All the schools want a change, they want to use audio-visual aids in their teaching process and they are changing to this new trend. The worth can used of audio-visual aids is felt by every school. The table also shows that every school has tried to use audio-visual aids. 63.7% of them use frequently and 36.3% of them do not use regularly and none of them has never used audio-visual aids. This necessitates the greater provision and management of audio-visual services for every school.

(3) The attitude of the students towards audio-visual aid is shown in Table - 22. It is clear that almost every student loves learning through audio-visual material (95.9%) and 83.9% of the students have shown a dislike for a conventional method of teaching. Besides this, they also like to learn through demonstration (96.8%), going to museums (91.1%), excursion (91%), projection (30.5), television (41.5%), and participating in activities (65.5%). In fact, these are included in audio-visual method. Only a small percentage (17%) of the students have indicated
Table - 23 shows the attitudes of the students towards audio-visual aids. Most of them feel that learning through audio-visual aids give them better understanding of the lessons (56.8%). Others feel that audio-visual aids make lessons more interesting (85.2%), that they are happy and exited to learn when they are taught with the help of audio-visual aids (73.8%), and that they are eagerly willing to participate in the lessons (66.8%). Only 10% and less than that feel confused, unwilling to join the learning process, and got bored.

This is a clear indication that the teaching process with the help of audio-visual aids is preferred by the learners than the conventional method, for "Audio-visual materials supply for concrete basis for conceptual thinking, they give rise to meaningful concepts." 1. There are so many evidences from the research in the field of audio-visual education which show that realistic, objective materials possess the real value for instruction. These researches report the prominent gains in informational learning, retention and recall, thinking and reasoning, activity, interest, imagination, better assimilation, and personal growth and expression.

The teachers feel favourably inclined towards the utilisation of audio-visual aids in the teaching process and this is also interesting for the students. The interest that is created by the introduction of various aids makes teaching and learning more effective, though some of the respondents (10%) do not approve of audio-visual aids because they feel that learning through such aids is at times confusing, only 5% of the students have the feeling that their time is wasted and to a very small percentage (3%) the use of audio-visual materials makes the lesson bore, but these can be rectified. The teachers will have to pay more attention to individual needs and use such aids that may be more purposeful and satisfying to the students.

Let us turn to the attitudes of the teachers and the school
principals towards audio-visual aids. From Table-6, 12 and 13 we can see
that both the school principals and the teachers appreciate the use of
audio-visual aids. They realise the worth and understand the important
characteristics of audio-visual aids, viz they feel that the judicious use of
audio-visual aids in the classroom and in the class period is helpful to the
students. This shows that one of the difficulties as stated by Finn that
there is the absence of an understanding and a point of view among the
professionals in the use of audio-visual aids does not exist both among
the school principals and the teachers in Thailand.

Table -7 shows the attitude of the school principals towards the
capacity of the teachers in the utilisation of audio-visual aids. Most of the
school principals while selecting teachers for appointment take into
consideration the qualification and the training in the use of audio-visual
aids as an essential qualification in the teachers. The number of teachers
who had received proper training in the use of audio-visual aids will
increase year by year because of this policy of the principals who prefer to
select those who have received training in the use of audio-visual aids.

(4) We now come to the question of the experience the teachers have
in the use of audio-visual aids. From Table-20 we can see that the chalkboard
is the most favourite device used by all of the teachers (100%). The reason
that every teacher uses the chalkboard is that it is the most common equipment available in every school and in every class. (Table 3 and 16),
But this is not an assurance that all the teachers know the effective use of the chalkboard.

Table 20 also shows that pictures, posters, real objects, specimens, maps and field trips are among the devices used by most teachers. Naturally the teachers may have some experience of these aids and activities, but there is no guarantee that their knowledge and experience in the use of these aids is effective. As in the case of the chalkboard, the reason why they use these aids is that they are easily available. However, a majority of the teachers have some audio-visual education (Table 2) signifies that they have a better idea and understanding about these aids. Moreover today all teachers' training institutions provide training in the use of audio-visual aids, offers a better hope for an understanding in the technique of audio-visual utilization in the real teaching-learning situations.

The table shows that besides the aids mentioned above, the teachers have less experience in other kinds of audio-visual aids. Cloths, bulletin boards, flannel boards, models, graphic materials, display, gramophones, tape recording, slides, radios, filmstrips, and motion pictures are used occasionally by the teachers while some other aids such as language laboratory, museum in the school, sand table, puppet, diorama, magnetic board, microfilm, opaque and overhead projector, teaching machine and television are rarely used. A large number of teachers have even never heard of certain audio-visual aids like the magnetic board, diorama, and teaching machine.

(5) Besides the chalkboards, pictures are very often used though only by 22.5% of the teachers, while posters, real objects, and specimens are fairly frequently used by only 19.5%, 15%, and 14.5% of the teachers, respectively. (Table 20). From this we can see that only a small number of teachers use audio-visual aids regularly.

(6) The reasons why some teachers do not use audio-visual aids are shown in Table 15. The largest number of teachers (24.4%) do not use audio-visual aids because they have no time to prepare them and 19.5% of the teachers do not use because they are not provided by the schools.
From this it is clear that the important problem that hinders the use of audio-visual aids in the problem of procurement. There are other problems too such as lack of sufficient time, financial difficulties, lack of facilities for their proper use, lack of appropriate distribution system, and lack of knowledge about audio-visual aids come next but these are not so important as the others as shown by the responses of the teachers.

The reasons why the teachers use audio-visual aids are shown in Table - 14. A large number of teachers use audio-visual aids because they realize that such aids make their teaching more effective (71.9%), because they are aware of their advantages (35.8%), because such aids are available in the schools (21.1%), and because they can prepare the aids themselves if they are not provided by the schools (12.6%). This leads to the conclusion that if all the teachers understand the worth of audio-visual aids, they will attempt to use them. This is also suggest s that if the aids are easily available and if the teachers have the ability to prepare them and the schools can offer necessary facilities for their preparation the teachers will surely use them.

(7) Table - 8, 9, and 10 show the kinds of audio-visual materials and equipment which most schools provide to their teachers. Chalkboards are provided by all schools. Maps, globes, pictures, real objects, tape recordings, bulletin boards, and specimens are provided by most of the schools (65.5% - 92.7%). Few of the schools (42.7% - 50%) provide other aids besides those mentioned above, such as slides, flannel boards, facilities for fieldtrip, motion pictures, raw materials for preparation of audio-visual aids, filmstrips, school museums or collections, magnetic boards, language laboratories, teaching machines, and opaque, overhead, and microfilm projectors.

The evidence from the data and the fact that the greatest
barrier in the use of audio-visual aids by the teachers in the problem of procurement suggests that the teachers usually use only those aids which are provided by the schools or which can easily be prepared by the teachers themselves. The aids which are not provided by the schools are naturally rarely used. Thus the teachers do not get a chance to use such audio-visual aids which are not suitable to teaching-learning situation in the classroom or their utilization is limited by the non-availability of such aids in the schools.

(4) From Table - 10 which shows the facilities provided by the schools for the use of audio-visual aids in the classrooms, we can see that the facilities provided by all the schools is the chalkboard. Bulletin board area, natural ventilation system, hooks, are provided by some schools. Power lighting arrangement are provided by most of the schools while only about half of them provide display area and area for the teachers to prepare audio-visual aids in the classrooms, storage area, sink, amplifier, projecting screen, light and sound control devices, students' working area, and projection area. It means that generally, the schools have only few facilities for the use of audio-visual aids in the classrooms. This may be due to the lack of understanding on the part of the school designers, of the school administrators and the lack of financial support to improve the school buildings.

(9) When audio-visual aids are not provided by the schools, the teachers themselves prepare inexpensive ones. Tables 18 and 19 show that the preparation are mostly made at the teachers' own expenses. The schools rarely pay for them. The teachers usually prepare them at their home and sometimes in their rest rooms in the schools. There are not many schools that have rooms specially meant for the purpose of preparing such aids. Table 18 suggests that some of the schools provide materials for the preparation of such aids to the teachers.
(10) The respondents were requested to suggest the methods for proper utilization of audio-visual aids, most of them replied that they will use more audio-visual aids and more frequently if the aids and facilities are better provided by the schools than at present and if there is a better system of distribution in the school (Table 16). This is apparent that though the principals realize that the schools should have a systematic service of audio-visual aids and that it is the schools' duty to provide audio-visual aids for their teachers (Table 6), the existing condition of the service is unsatisfactory. The schools cannot provide sufficient aids and facilities to their teachers, and the service and distribution system in the schools is still not satisfactory because of financial difficulties. As the principals very well understand the value of audio-visual aids and the need of a well-managed service system there is every possibility that the situation will improve in the near future.

Other ways leading to the better utilization of audio-visual aids suggested by the teachers are; more time given to prepare them, more time allowed to use them in the classroom, and more suitable classroom. If the teachers are allowed more time for the use and preparation of audio-visual aids, they will be able to use them more. This means that the teachers should be allowed to have more free periods so that they can have sufficient time for thinking, planning, preparing, producing, and using audio-visual aids.
Some of the respondents have suggested a better knowledge in audio-visual aids for their appropriate utilization. Better understanding, better concepts and more knowledge in audio-visual techniques will certainly lead to its better utilization with better results.

From Table - II we can see that 38.2% of the schools spend part of the school budget for purchasing audio-visual aids, only a few of them manage to provide the finance from other sources. It is surprising that most of the schools (56.4%) do not provide funds in the budget for this purpose, it is the teachers who are supposed to be responsible of such expenses. This suggests that the amount available is small. The small subsidy the government schools receive from the government is generally small which has to meet varied needs of the schools and only a small amount is left for providing audio-visual aids. This too depends on the attitude of the school administrators. In this case we can say the finances for the provision of audio-visual materials and equipment in the secondary schools in Thailand depend mostly on the attitude of the school administrators and also on the amount they can spare, which may or may not be based on the real needs of the teachers and the students. The same is the case with private schools, they also have only a small subsidy from the government, their largest income comes from tuition fees paid by the children and from the amount charged from the parents of the newly admitted students. The subsidy from the government and the tuition fees from the students is not enough even to pay the salaries of the teachers and other personnel and for other expenses, the schools may have a small amount of money left for the purpose of providing audio-visual aids besides finances for the construction of the school buildings. Thus leaving only a small amount for the provision of audio-visual aids.
The table shows that 33.2% of the schools provide audio-visual aids out of their own budget and only 11% of them manage to borrow such aids from other sources. 56.4% of the schools let the teachers prepare these aids themselves with and without the support of the schools, and only 5.5% get financial support from other sources.

( I" ) The way the school principals use to encourage their teachers in using audio-visual aids and the facilities they provide for the teachers are varied, but it can be gathered from the responses to the questionnaires that all the schools do not use the methods mentioned therein.
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.

(1) 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

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
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.\(^1\)

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

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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.

1. De Kieffer, Robert E., The Status of Teacher-training in Audio-visual
   Education in the Forty-eight States, pp. 79-81. Doctor's dissertation,
   State University of Iowa, 1948.
The enumeration of such requirements made by a California Committee of Educators should also be taken into consideration. They are:

1. Knowledge and understanding:
   a. Philosophical and psychological factors underlying the use of audio-visual materials and equipment in the classroom.
   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.

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 cooperation 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. 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.

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

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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:

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

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 homework.
- 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 in the teachers'
meetings. The principals of the schools 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 - Organised 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.²

(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.

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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 organised 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 aide 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, co-ordination, 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 3½" 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

still medium is the microfilms 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 utilise 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 equipments 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. Utilisation 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 schools, 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 this 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 institution 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 log 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 Auresne initiated efforts to bring national leaders in audio-visual education to California for institute programs 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 previewed 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 (d), 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.

Informing.

One of the primary function 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 literatures 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.

**Educatio 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, organizing 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 students? 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 affect 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 under-
standing 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 administra-
tors, 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.

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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).  

(4) Evaluation.

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

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 decentralisation 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 competencies 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 competency 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

¹ Audio-visual Materials, E.S.S.E. Yearbook, op.cit. p.170.
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.

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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

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).**

8. **Encourage and assisting teachers in matters of preparing simple instructional materials.**

9. **Serve as contact person for scheduling resource persons in the community and arranging field trips.**

10. **Keep simple records.**

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

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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.
(w)  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

producers, and storage areas for some audio-visual aids. The desks, seats, and other furnitures should be light-weight, movable, and flexible. Light and electric 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

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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>
<td>For the use of</td>
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<tr>
<td>---------------</td>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>4. Display case</strong></td>
<td>Fixed at one wall joined to the hall or corridor. Should be built of transparent material so that it can be seen both from the hall or the corridor and from the classroom.</td>
<td>Exhibiting materials or classroom’s projects.</td>
</tr>
<tr>
<td><strong>5. Storage case</strong></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><strong>6. Working area</strong></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, of activities, consultation, or quiet study.</td>
</tr>
<tr>
<td>Facility</td>
<td>Suggestion</td>
<td>For the use of</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>7. Light control</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>devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Projection</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 is 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>screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Electric</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>outlets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility</td>
<td>Suggestion</td>
<td>For the use of</td>
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<tr>
<td>------------------</td>
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<td>--------------------------------------------------</td>
</tr>
<tr>
<td>10. Sound control</td>
<td>Acoustic materials should be fixed along the outer sides of 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>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 bulbs</td>
<td>Should be of the controllable type.</td>
<td>Allowing the note-taking while the room is darkened for the projection purpose.</td>
</tr>
</tbody>
</table>

Teacher improvement of inadequate facilities.

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 emphasized; 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 serves 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 water-proof 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.
CHAPTER VII

Conclusion and Suggestions
Chapter VII
CONCLUSION AND SUGGESTIONS.

The analysis of the data can be summarized into four categories as follows:

1. The attitude of the school personnel toward audio-visual aids.
2. The understanding, knowledge, skills, and ability of the teachers in the utilization of audio-visual aids.
3. The management of audio-visual service in the schools.
4. The classroom conditions and the facilities for the use of audio-visual aids.

(†) THE ATTITUDE OF THE SCHOOL PERSONNEL TOWARDS AUDIO-VISUAL AIDS.

From the responses of the three groups of school personnel—the school principals, teachers, and students, it can be concluded that all the three categories of the respondents have shown desirable attitude towards audio-visual aids. They realize the value of audio-visual aids as an effective means to better learning. This is a healthy sign and will help in introducing audio-visual aids in the teaching-learning process in the secondary schools in Thailand.
(2) THE UNDERSTANDING, KNOWLEDGE, SKILLS AND ABILITY OF THE TEACHERS IN THE UTILIZATION OF AUDIO-VISUAL AIDS.

The data suggests that the school principals are not properly trained in the use of audio-visual aids. A reorientation programme for them is still necessary so that they may guide the teachers and help them to introduce new techniques in their teaching. Approximately 35% teachers have yet qualified themselves in audio-visual education and the remaining 65% are still unqualified. The audio-visual materials which are frequently used by a majority of the teachers are mostly simple aids such as chalkboard, picture, real object, specimen, and map. But this does not mean that they usually use such audio-visual aids effectively. It is easily noticed that some teachers do not know the recent techniques of chalkboard utilization, most of the teachers have never used such chalkboard devices as template and stencil. The teachers should wherever necessary use audio-visual aids in their teaching. The proper use will depend on several factors: good knowledge about audio-visual aids, the availability of these aids, and the time when they are to be used. The responses of the teachers to the questionnaire shows that they would prefer to use audio-visual aids if they have longer class periods and if there are proper facilities in the classrooms. Reducing teaching loads will offer the teachers more time to prepare audio-visual materials and use them effectively. This may also
necessitate eliminating crowded contents of the subject-matter to provide facility for the effective use of audio-visual aids in the teaching period. Besides this, facilities for the display of audio-visual materials and projection of film strips, films etc. should be provided in the classrooms.

(3) **The Management of Audio-Visual Programme in the Schools.**

The data suggests that all the teachers are favourably inclined to the use of audio-visual aids in the teaching process implies the need for a good audio-visual service programme in the schools. From the frequency of the utilisation, we can see that beside the chalkboard, other aids are used very scarcely. Even pictures, which are used as the second frequently-used aid, are used by merely 33.5% of the teachers. It is clear, therefore, that the other aids are not used frequently. The reasons as suggested by the teachers in not frequently using these aids are quite revealing. A majority of the teachers (24.4%) refered to the lack of time to prepare audio-visual aids for their use, the other 17% stated that they are not provided by the schools. This implies that the schools do not provide even simple aids. This does not mean that the schools have to purchase every individual audio-visual materials, but this shows that the schools do not have a proper system of provision and production. Some of the teachers as suggested by their responses prepare audio-visual materials and meet the cost themselves. This discourages them in the preparation of audio-visual aids.
The other reasons mentioned by the teachers such as the lack of time to use whatever aids are available in the classrooms, the faulty distribution system, a lack of knowledge in audio-visual area, and the financial difficulties are secondary problems. However, if proper use of audio-visual aids in the school is aimed at, these problems have to be solved.

If the teachers understand the worth of audio-visual aids, they will use them. If audio-visual aids are available to them or if they can prepare them out of the funds provided by the schools, they will surely use more aids. The responses of the teachers that they will use audio-visual aids if the schools provide them and offer them proper facilities is a proof of their willingness. The responses suggest that there is no proper audio-visual service programme in the secondary schools in Thailand. From the author's experience of the conditions existing there and also from the suggestions put forward by the teachers, the following are the shortcomings which hinder the proper use of audio-visual aids:

1. The schools audio-visual service system is not properly organized. The service, provision, production, and distribution of audio-visual materials are not based on sound principles and without an understanding of the goals for the effective use of such aids.
2. Well qualified persons are not appointed to take over the responsibility of the school audio-visual service programme.

3. The audio-visual aids have usually been purchased or procured without consulting the teachers who use them.

4. The schools do not assist the teachers in providing such aids, that are not available in the schools by borrowing, renting, or contacting some other sources. It is usually the teachers responsibility to procure the aids themselves.

5. The schools do not provide any financial support or facilities to the teachers in the preparation of aids.

6. The schools do not provide the teachers sufficient information regarding the aids available there or new materials added to the old ones. Not even relevant literature concerning audio-visual materials is provided to them.

7. No programme of the integrations of audio-visual aids in the curriculum of different grades and subjects have been attempted.

8. Books, magazines, reports, and other reading materials concerning audio-visual aids are scarcely kept in the school libraries.

9. There is no regular in-service training programme for teachers in the field of audio-visual aids.
4. THE FACILITIES AND THE CONDITION OF THE CLASSROOMS.

Generally, the schools provide the bulletin and chalkboard area, natural ventilation system, hooks, and light bulbs for their classrooms. Other necessary facilities are rarely provided. The classrooms are still traditionally planned, there is a lack of display and projecting areas, teachers' and students' working areas, sink, storage, light and sound control etc.

The typical character of the classrooms in the secondary schools in Thailand is a rectangular room of about 8 x 10 metres, attached to the verandah, the inner wall is composed of solid wall and two doors, the outer wall consists a row of windows. The two rear walls at the front and the back of the classroom are left blank. There is chalkboard and a small area for bulletin board at the front wall. The floor of the classroom is wooden or cemented, the same is the case with the ceilings. Some of the classrooms have only a small blank space besides the chalkboard.

The seating arrangement is also a traditional i.e., there is a table and a chair for the teacher at the front, near the chalkboard. The students' seats are of single-seat type and not easily moveable, occupying the whole of the classroom, or may be a small area of 2 to 3 metres left at the front. Thus there is hardly any space left for activities. No classroom has an area for the preparation of audio-visual aids either by the teacher or the students.
Projection of pictures, etc. are not possible because there is no screen, no light and sound control. If the doors and windows are shut in order to darken the room, there will be the problem of insufficient ventilation, besides the arrangement of the seats is not suitable for the purpose. If effective learning through projection is aimed at, the seats have to be properly arranged.

It can be concluded that the classrooms in the secondary schools in Thailand are not suitable for effective use of teaching aids, or other activities. This does not imply that improvement is impossible. Efforts can be made to improve the existing conditions of the classrooms.

SUGGESTIONS.

Having studied the problems facing the use of audio-visual aids in the secondary schools in Thailand, the following suggestions may be helpful in the solution of the problems.

(1) To improve the attitudes of the school personnel towards the use of audio-visual aids.

The school principals, teachers, and the students are in favour of the use of audio-visual aids in classroom teaching as shown by their responses to the questionnaire. This use can be more meaningful if regular inservice training programme is organized in the schools or by audio-visual aid centres for the principals and the teachers.
(2) To improve the understanding, knowledge, skills, and ability of the teachers in the use of audio-visual aids.

This can be done by:

1. Making audio-visual a compulsory course in every teacher-training institution. Every prospective teacher should study about audio-visual aids and their utilization as a proper method of teaching. Importance should be attached to the use of audio-visual aids in practice teaching at the pre-service training stage. During the training period the student-teachers must have full opportunity to use audio-visual aids and prepare their own materials for use in the classroom. The curriculum in audio-visual course should follow the actual needs of teaching in the schools.

2. An audio-visual library should be established in each school. Important books, magazines, journals etc. should be available to the teachers for ready reference. They should also be aware of the new techniques of audio-visual aids utilization.

3. The Audio-visual Centre, either in the school, established by the Ministry of Education, or by the teacher-training institutes, should take the responsibility of helping the teachers and solving their problems. These centres should act as guides and offer the teachers practical and valuable suggestions.
4. The Ministry of Education, with the co-operation of the curriculum specialists, and the audio-visual experts, should suggest possible means of integrating audio-visual aids in the courses of study of every subject and at every grade level.

5. The Audio-visual Centres as mentioned above should produce the teacher's handbooks on the use of audio-visual aids to be made available to the teachers free of charge. These handbooks will guide a large number of teachers in the proper use of aids in the teaching process. Besides these handbooks, they should distribute other valuable documents concerning audio-visual aids to the teachers regularly.

6. The in-service training in audio-visual education should be made a regular feature for the teachers. This should be organised by the Ministry of Education, the universities, the Audio-visual Centre, or the teacher-training institutes. A survey of the teachers' requirements should be made before planning the training programmes. This programme should be relevant to the actual needs of the teaching situations and should be planned for two levels, one for the school principals and the school administrators, and the other for the classroom teachers. Every school should offer sufficient opportunity to its teachers to receive this training.
The training programme should be well organised. The trainees should be divided into small groups, each group should be provided with sufficient facilities in using audio-visual materials and equipment. New materials or equipment or new techniques should be made known to the teachers. There should also be enough books, magazines, periodicals, and pamphlets for use by the teachers. The training programme should be composed of both theory and practice, the practical side should be given greater importance.

The preparation and utilisation of inexpensive aids should be included in the programme. Demonstrations by the classroom teachers should also be arranged.

7. In each school, the teachers may be encouraged to use audio-visual aids effectively. The following methods are suggested by the author.

THE SCHOOL AUDIO-VISUAL LIBRARY.

The audio-visual library may be a part of the school library. It should be provided with books, magazines, periodicals, concerning audio-visual education and aids, the synopses of researches and recent developments in audio-visual field, and reports giving the results of the evaluation of various aids and the community resources available to the schools.

Bulletins and handbooks should be distributed among the teachers free of charge in order to provide them upto-date information and guidance.
The information should, however, be properly selected. Quality rather than quantity should be the criterion of selection of such materials.

TEACHERS' MEETINGS.

The principal or the school audio-visual director should try to stimulate teachers' interest in the improvement of the teaching methods and invite the teachers to meet regularly in order to discuss their problems and help them in solving their problems.

DEMONSTRATIONS

Regular demonstration and exhibition of new audio-visual equipment should be organized in each school. The teachers who are interested and have organizing capacity should be given the responsibility of organizing such demonstrations.

EQUIPMENT CLINIC.

Equipment clinic should be maintained in the schools which should be managed by trained technicians. Some of the teachers should also be helped in the operation, proper handling and maintenance of sophisticated equipments.

SCHOOL VISITATION.

The school visitation is another way to augment the teachers' knowledge and understanding of audio-visual education. The teachers of one school should visit other schools in order to observe the techniques of teaching by other teachers in school classroom situations. The teachers should be encouraged to discuss their problems with their colleagues.
The following suggestions based on the ideas given by the respondents and the author's experience will be helpful in providing audio-visual aids in the schools:-

1. The manufacture of simple equipment and materials on a large scale can be undertaken by those who are engaged in manufacturing scientific equipment for the schools. This will help in reducing the cost of the equipment. The Audio-visual Department of the Ministry of Education should contact the commercial companies and provide the incentives in providing aids commonly required by the schools.

2. Each school should prepare a list of various sources that provide audio-visual aids and pass them on to the teachers.

3. Information about the new materials or equipment should be given to the teachers. The teachers should be encouraged to preview and evaluate the aids and try to use them to make their teaching more effective.

4. The schools should prepare a file of data on teachers' reaction and appraisal of audio-visual aids in consultation with others who may be more experienced.

5. The schools should give the teachers informations of audio-visual libraries in the towns where they can find appropriate reading materials. It should also be the duty of the schools to provide sufficient audio-visual
materials, equipment, and facilities to meet the needs of the teachers, either by purchasing, borrowing, renting, or producing them.

6. The teaching load of individual teachers should be reduced to leave them sufficient time for the preparation and use of audio-visual aids.

(3) The improvement in the management of audio-visual programmes in the schools.

1. The principal in each school should be made responsible for audio-visual programmes. While individual schools should help themselves to run the audio-visual programme, it should also try to contact and get assistance from bigger organizations such as the audio-visual centres established by the Ministry of Education, by universities, or by the teacher-training institutes. If such audio-visual centres are not available, several schools in the neighbourhood may establish a centre themselves.

2. There should be a systematic audio-visual service in each school. The programme must be planned for a whole term and executed according to the plan. There must also be a regular critical appraisal and evaluation of the programme in order to know the shortcomings in the existing programme.

3. An ideal plan is to have an audio-visual centre in each school. This centre should take the following responsibilities.

a. To provide audio-visual materials, equipment, and facilities to meet the needs of the teachers.
b. To distribute the audio-visual aids to the teachers when required. The distribution of aids should as far as possible avoid re-taping. It should be the teachers responsibility to return the aids borrowed to the centre after use. It should be the duty of the centre to maintain the aids in the good condition ready for use whenever required.

c. To repair the defective ones.

d. To assist the teachers in operating such equipments that are complicated, for this purpose the schools should appoint a technician who would not only run the machines but be able to repair and keep them in good condition.

e. To survey the community resources and inform the teachers about those resources that can be utilized in teaching.

f. To evaluate audio-visual materials and equipment in terms of curricular needs and approved instructional practices.

g. To survey the physical facilities of the classroom and help in their improvement for the effective use of audio-visual aids.

h. To arrange meetings, conferences, or workshops for the teachers to discuss the problems connected with the use of audio-visual aids.

i. To appoint a committee of interested teachers to select audio-visual materials and equipment for the schools. No aid should be purchased unless recommended by the teachers and the school board.
j. To keep constant contact with the teachers and the curriculum experts in order to determine the actual needs of audio-visual aids in the various teaching situation.

k. To maintain a school workshop for the preparation of aids. The raw materials, devices, and facilities should be available in the workshop.

l. To arrange in-service training programmes for the teachers.

m. To provide facilities for research evaluation programme in order to determine the effectiveness of various audio-visual aids used in the classroom and their correlation with the curriculum. Much of this research should be carried out in actual teaching. The results of the research should be made available to the teachers.

n. To recommend to the school board the funds required for audio-visual service programme in the school.

4. The school must provide sufficient fund out of the school's annual budget which should be sufficient to maintain old equipment and to purchase or hire new ones, this should include funds for the improvement of classroom facilities. The allocation of the fund must be the joint responsibility of all those that are directly connected with audio-visual service programme.

5. The principal should encourage the teachers to inform him of their audio-visual aid requirements which should as far as possible be met out of the school funds. The principal should also try to make a regular appraisal of
the result of audio-visual programme in his school. Only thus he can be sure that the school funds are being used effectively.

**AUDIO-VISUAL CENTRE.**

The establishment of large audio-visual centres will prove to be of great help to the audio-visual service programme to the schools. These centres can be established by any organisation such as the Ministry of Education, the universities, the teacher-training institutions, even several schools in the neighbourhood combined together can establish one such centre. At present there are several audio-visual centres in Thailand, especially in Bangkok. These centres are established by the universities to serve various faculties of the universities; and by the teacher-training institutes to serve their teaching staff and teacher-students. None of these centres at present help the secondary schools except their own practice or demonstration schools. There is only one Audio-visual Centre in Bangkok, established by the Ministry of Education, which serves a few schools in Bangkok, but this area is too large to be served by one centre alone because the number of schools in Bangkok is too large. It is suggested, therefore, that several audio-visual centres be established and maintained by the Ministry of Education spread all over the country.

The responsibility of the audio-visual centres has to be enlarged to cover the following:
i) Providing more copies of audio-visual materials and equipment to meet the needs of the schools it serves. The stand-by equipment must also be provided to the schools in case the existing equipment is out of order.

ii) Releasing the articles and reports concerning important development in audio-visual field prepared by professional committees or by individuals. The audio-visual centre has to encourage such persons to prepare more materials. The printing and distribution should be the responsibility of the centre.

iii) The audio-visual centre in consultation with specially trained architects should offer suggestions for the improvement of the school buildings for better utilization of audio-visual aids. The centre may arrange for annual conference of the architects, the educators, the school administrators, and the audio-visual experts which should suggest ways to correct, adapt, or plan the classrooms, install electric outlets, control light and sound with their cost, etc. All such information should be included in a bulletin that should be distributed to the schools.

iv) The centre should provide handbooks, bulletins, pamphlets, or catalogues to the schools in order to give accurate and up-to-date information about the available materials the centre can supply.

v) In order that the required material is delivered to the schools in time, the centre should have its own conveyance. This will help speedy delivery of materials.
vi) Small schools cannot afford to purchase expensive equipment, the centre should lend these equipment on a long-term basis to such schools as the frequent transportation of expensive equipment may not be feasible.

vii) A survey of the community resources providing rich informations and experiences to the students, including materials, places, and people should be made by the centre. This information should be communicated to the teachers.

viii) The centre should help prepare teacher manual, guidebooks, or handbooks.

ix) The centre should co-operate with the curriculum workers for the first step selection of audio-visual materials used for teaching, eliminating those that are not useful, and guide the teachers in the selection and use of these materials.

x) The centre should help in the continuous evaluation of the audio-visual materials in terms of curriculum objectives, and help conducting the experiments and researches which may contribute to curriculum revision.

xi) The centre should supervise and give assistance in the use of audio-visual aids in the classrooms. This may be accomplished by working directly with individual teachers, working indirectly through the supervisors, school administrators, or school co-ordinators, or working with the in-service training programme.
xii) The centre should help in the production of simple audio-visual aids in the schools. This may be done through planning, guiding, giving suggestions, or providing guiding books.

xiii) The centre should try to influence commercial companies to produce audio-visual aids which are suitable to educational needs, and should try to secure sufficient state funds for purchasing or preparing audio-visual materials which are not available in the market.

xiv) The centre should manage meetings or conferences of grade and subject teachers from various schools. In these meetings, the centre should suggest the basic techniques of utilizing and producing audio-visual aids suitable for various grade and subject.

xv) It should be the duty of the centre to provide in-service training facilities in audio-visual education for various levels of school personnel such as the school administrators and the teachers in order to give them better understanding, knowledge, skills, and ability in the administration, utilization, and production of instructional aids.

These responsibilities may seem too heavy a burden but with determination this can be achieved gradually if properly planned.

(4) Suggestion for the improvement of classroom conditions and facilities.

In the newly constructed classrooms there can be no difficulty in providing the basic facilities for the proper display and effective use of the
audio-visual materials and equipment. The architect should help in planning the classrooms so as to provide such facilities.

For the modification of the existing classrooms, desirable changes are suggested below:

i) The existing chalkboards should be improved. They should be repainted with the best quality of chalkboard paint. A rail or hook should be provided above the chalkboard for exhibiting maps, charts, etc. If the chalkboard area is large, there should be a curtain ready to cover it when the sound projection is performed, in order to cut out the sound reverberation. The area under the chalkboard can be made a storage area by adding a storage cupboard or shelf therein.

ii) Bulletin board should be placed on both sides of the chalkboard. If the chalkboard is empty, a large bulletin board could be placed above it. If necessary side walls may also be used for bulletin boards.

The back wall should usually provide cupboard for storage. If the storage cupboard occupies the whole length of the back wall, bulletin boards may be fixed at the cupboard doors. This space is not only properly used for the display of useful materials but will also serve the purpose of eliminating sound reverberation at the time of sound-projection and record playing.

It is not difficult to construct a bulletin board; a sheet of plywood, celotex or soft-board can be a good material. Masonite sheet with small holes is good for displaying three-dimensional objects.
iii) Sound-absorbing materials such as acoustic board or acoustic tile should be installed on the hard walls and the ceiling of the classroom. If the school budget allows, the hard concrete floor may be covered with asphalt tiles, but it will not be necessary if the floor is wooden.

iv) Storage cupboards should be placed under the windows throughout the whole length of the classroom. The width of the cupboard should be 30-50 cm. The cupboard should be divided into various parts with various characteristics, some having covers, some without covers, some with glass covers, and some with drawers, which will be useful for the storage of various types of materials. A built-in cupboard of 20 x 90 cm. could be useful for storing maps, charts, and graphic materials.

v) The area at the back of the classroom should be adapted into a reading corner, with one or two tables and few seats if the area allows. If the area is limited, there can be a book shelf fixed to the wall.

vi) The verandah wall could also be used for display-cupboard. The cupboard should be of a transparent type, with glasses at both sides, its size should be about 0.50 x 2.00 m.

vii) A folding projection screen should be placed either above the chalkboard or at one of the corners of the front wall.

viii) Electricity outputs of the double-female type should be installed at both the front and back of the classroom, they can be fixed on
the wall or on the floor. A new electricity line with switch to control light point will also be required.

ix) Two curtain rails along the whole length of the window area should be fixed in each classroom. One should be 12" away from the windows, and the other 18" away. A thick, dark coloured curtain for the inner rail and a thin one at the outer rail will be required. The lower edge of the curtains should be about 12" from the floor with arrangements to keep them in place.

x) There should be no ventilation holes at the lower end of the walls as this will make the controlling of the light difficult. Any ventilation required should be of the movable louvre type, made of wooden sheets.

The following are the illustrations of a traditional classroom, a classroom after adaptation, and an ideal classroom designed by the author, together with an illustration of facilities needed in a classroom.
AN ORDINARY CLASSROOM

SOURCE AMORADHAT, K., A STUDY OF SCHOOL DESIGNS FOR THE USE OF AUDIO-VISUAL AIDS.
AN AMENDED CLASSROOM: Acoustic tiles are fixed at the upper part of the walls and around the ceiling.

- 1 FLOOR-FIXED FEMALE OUTLET
- 1 WALL-FIXED FEMALE OUTLET
- 1 LIGHT SWITCH

SOURCE: AMORADHAT, K. A STUDY OF SCHOOL DESIGNS FOR THE USE OF AUDIO-VISUAL AIDS.
A knowledge of the classroom facilities required for an effective use of audio-visual aids can provide teachers with (i) an idea to remodel the classroom on modern lines;

(ii) Teachers can assist in planning or re-modelling classrooms in their schools;

(iii) teachers can use these ideas as primary yardsticks to assess the classroom facilities. If such facilities are inadequate, They may be able to influence the school administrators or school boards to get the classrooms improved. Since it may often take a long time to get the classroom improved, many teachers should use inexpensive, relatively easy, and temporary adaptations in making their rooms suitable to the instructional needs of the students. They should analyse facilities available, decide what is wanted, and try to make up for these inadequacies in a variety of ways. It is possible that an active learning situation may be only partially stimulated because of lack of proper facilities and necessary planning. The school boards should ultimately provide new classrooms or remodel the old ones to provide adequate facilities for teaching on modern lines. Only thus teaching and learning can be more effective.
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34.

Journals


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Source: Fisher, Charles A., South-East Asia. p. 484
MAP OF THAILAND: Showing Educational Regions.

Source: Ministry of Education, Thailand, The Department of Teacher Training, its Work and Organization, p. 1
1. Satrividhaya School
2. Satri Mahayutaram School
3. Suksa Nari School
4. Wat Suthevararam School
5. Tawithapisek School
6. Suan Kulab School
7. Yothin Burana School
8. Intrachai Trade and Industry School
9. Uthentawai School of Building and Construction
10. Kantabut School
11. Deves Suksa School
12. Satri Prachakorn School
13. Samacem Rongrearad School
14. Pudungwit Pidhaya School
15. Burana Vidhaya School
16. Bangkok Christian School
17. Watana Suksa School
18. Kema Pidhaya School
19. Satri Ramrung Vidhaya School
20. Kantavaravit School
TYPICAL LAYOUT OF A LECTURE ROOM

SOURCE: AUSTWICK, KENNETH, MEDIA AND METHODS; INSTRUCTIONAL TECHNOLOGY IN HIGHER EDUCATION.
(Appendix)

Questionnaire for the School Principals.
(English Translation)

(1) Name ____________________________ (if desired)

Educational qualification

--- M.A.
--- B.A.
--- Diploma
--- Higher Certificate
--- Certificate
--- M.S. 5
--- M.S. 3

Professional qualification _____________________________________________

Experience as a principal _______ Years _________ Months

Teaching experience _________ Years _________ Months

Primary School
Secondary School
Higher Secondary School
College

At present you are the principal in a

(1) Public School ________
(2) Private School ________
Did you study Audio-Visual Procedures in teaching?

Yes________ No________

If yes, where did you study?

Teacher's College________
University ____________
In-service training programme ________
From books and magazines ________

2. Below is given statements regarding audio-visual facilities and advantages, etc. Please check / in the space provided.

— Audio-visual aids are not useful.
— They help the teaching to be more effective.
— It is the teachers' responsibility to find their own audio-visual aids.
— It is the responsibility of the school to provide audio-visual aids to the teachers.
— The school should manage audio-visual aid programme by establishing a systematic service.
— The teachers of your school use audio-visual aids in teaching.

3. If the teachers in your school use audio-visual aids, do they use

- Frequently
- Sometimes
- Never.
4. (a) What arrangements have you made for the procurement of audio-visual aids in your school?

- Procured out of school budget
- Purchased out of government funds
- Procured out of financial assistance from other sources
- Borrowing from other schools
- Prepared by the teachers

(b) In what way do you encourage the teachers who use audio-visual aids?

(c) What facilities do you provide to such teachers?

5. Which of the following audio-visual materials and equipment you have in your school for use by the teachers? Please check / in the space provided.

- chalkboard
- magnetic board
- flannel board
- bulletin board
- real object
--- specimen
--- model
--- museum or collection
--- picture
--- map
--- globe
--- graphic material
--- slide
--- filmstrip
--- tape for recording
--- microfilm
--- facilities for fieldtrip
--- motion pictures
--- language laboratory
--- raw materials for the preparation of audio-visual aids.

6. Which of the following equipment do you have in your school for teacher's use? Please check /

--- slide projector
--- microfilm projector
--- motion picture projector
--- opaque projector
--- overhead projector
--- tape recorder and player
--- camera
--- gramophone
--- radio set
--- television set
--- teaching machine
--- language laboratory
--- automatic classroom

7. What materials and equipment are in your opinion, frequently used by the teachers in your school?

Materials

Equipment

8. While recruiting new teachers do you prefer those who are qualified in the use of audio-visual techniques in teaching?

9. What facilities exist in your school for a better understanding of audio-visual programme for your teachers?

10. What is the average size of classrooms in your institution?

length (meter)

Width (meter)
Which of the following is provided in the classroom in your school?

--- Storage space, size

--- Display area, size

--- Projection area, size

--- Projecting area, size

--- Teacher preparation area, size

--- Work space for students, size

--- Bulletin or display board, size

--- Sectional tables for group projects

--- Chalkboard, size

--- Shade, drape, venetian blind, or louver at the windows and doors, type

--- Overhead light, how many?

--- Switch for overhead light, where is it?

   At the front end

   At the back end

   At the middle of the room

--- Sink

--- Electric outlet, how many?

--- Fan ventilation when all doors and windows are closed
--- Good natural ventilation when all doors and windows are closed.
--- Mechanical system of ventilation.
--- Sound amplifier.
--- Acoustical materials attached to floor, wall, ceiling.
--- Fixed screen for projection.
--- Movable screen, type? Hanging ----------------

With stand------------------
--- Hooks for hanging chart, screen, map, etc.
QUESTIONNAIRE FOR TEACHERS OF HIGHER SECONDARY CLASSES.

1. Name _________________________________ (If desired)

Educational qualification

---------- M.A.

---------- B.A.

---------- Diploma

---------- Higher Certificate

---------- Certificate

---------- M.S. 5

---------- M.S. 3

Professional qualification ________________________________

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At present teaching in a (1) Public school ----

(2) Private School ----

Average number of students in the class that you teach ---------------

Average number of periods you teach per week ------------------------

Did you study Audio-visual procedures in teaching?

Yes ------- No. -------
If yes, where did you study?

In the Teachers' College
In the University
In the in-service training
From books and magazines

2. In your opinion, the utilization of audio-visual aids in teaching is:

--------- Time wasting
--------- Time wasting, but worthwhile
--------- Time saving
--------- The cause of disorderliness in the classroom
--------- Making the students bored
--------- Suitable to be used outside the classroom
--------- Suitable to be used outside the class period
--------- Suitable to be used in the classroom and in the class period

Audio-visual aids are used:

--------- To make teaching-learning process simple and easy to understand.
--------- To make teaching more effective.
--------- To make lessons more interesting to the students.
--------- To give a better understanding to the students.
--------- To help in imparting more knowledge to the students.
3. Below is given a list of audio-visual materials.

   a. Which of these have you ever heard, seen, or used? (Please check / in column A).

   b. If you have used them, how frequently you have used them? (Please check / in column B).

<table>
<thead>
<tr>
<th>No</th>
<th>Audio-Visual Aids</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Never Known</td>
<td>Heard</td>
</tr>
<tr>
<td>1</td>
<td>Chalkboard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Magnetic board</td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>Flannel board</td>
<td></td>
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<tr>
<td>4</td>
<td>Bulletin board</td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Field-trip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Real objects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Specimens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sand table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Museum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Pictures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Posters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Maps</td>
<td></td>
<td></td>
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<tr>
<td>14</td>
<td>Globes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Graphs, Charts, Diagrams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Audio-Visual Aids</td>
<td>A</td>
<td></td>
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<td>-----</td>
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</tr>
<tr>
<td>16.</td>
<td>Dramatization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Puppet and Shadow playing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Diorama</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Demonstration</td>
<td></td>
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<tr>
<td>20.</td>
<td>Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Disc record</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Tape record</td>
<td></td>
<td></td>
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<tr>
<td>23.</td>
<td>Slides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Filmmstrps</td>
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<tr>
<td>25.</td>
<td>Microfilm</td>
<td></td>
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<tr>
<td>26.</td>
<td>Opaque projector</td>
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<tr>
<td>27.</td>
<td>Overhead projector</td>
<td></td>
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<tr>
<td>28.</td>
<td>Radio</td>
<td></td>
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</tr>
<tr>
<td>29.</td>
<td>Motion pictures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>Television</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>Teaching machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>Language laboratory</td>
<td></td>
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</tr>
</tbody>
</table>
4. You have used the materials because:

--- You think that these aids will make your teaching more effective.

--- You are aware of their advantages.

--- Other teachers use them so you use them too.

--- You can prepare them yourself.

--- Only these are available in your school.

Any other reasons. ----------------------------------

----------------------------------

5. (a) Does your school provide audio-visual aids to the teachers?

--- Yes  ---  No---

If it does, which of the aids? (Please check / in the first
or second column as the case may be).

(b) If your school does not provide, do you prepare audio-visual
materials yourself?

(If you do, check / in the third column).
<table>
<thead>
<tr>
<th>No.</th>
<th>Audio-visual materials</th>
<th>Provided by school</th>
<th>Not provided by school</th>
<th>Your own preparation or procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chalkboard</td>
<td>(1)</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>2</td>
<td>Flannel board</td>
<td></td>
<td>(2)</td>
<td></td>
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<tr>
<td>3</td>
<td>Bulletin board</td>
<td></td>
<td>(2)</td>
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<tr>
<td>4</td>
<td>Real objects</td>
<td></td>
<td>(2)</td>
<td></td>
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<tr>
<td>5</td>
<td>Sand table</td>
<td></td>
<td>(2)</td>
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<tr>
<td>6</td>
<td>Specimens</td>
<td></td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Models</td>
<td></td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Museum or collection</td>
<td></td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Pictures</td>
<td></td>
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<td>10</td>
<td>Posters</td>
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<td>11</td>
<td>Maps</td>
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<td>12</td>
<td>Globes</td>
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<tr>
<td>13</td>
<td>Graphs, Charts and</td>
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</tr>
<tr>
<td></td>
<td>Diagrams</td>
<td></td>
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<tr>
<td>14</td>
<td>Puppets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Diorama</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Tape recording</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Slides</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>18</td>
<td>Filmstrips</td>
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<td></td>
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<tr>
<td>19</td>
<td>Films</td>
<td></td>
<td></td>
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</tbody>
</table>
(c) If you prepare audio-visual materials yourself, how do you meet the expenses?

- Yourself.
- Out of the school funds.
- Contributed by other teachers.
- Contributed both by the school and other teachers.
- Take help from the students.
- Take help from other sources.

(d) If you prepare them yourself, where do you prepare them?

- At your home
  - At the student's home
  - In the school working room.
  - In the school art room.

6. If you do not use audio-visual aids frequently, what are the reasons?

- Because you have no knowledge of such aids and their uses.
- Because the school does not provide them to you.
- Because you have no time to prepare them.
- Because it is not easily available from other sources.
- You have time to prepare them, but no money to spend.
- You have time to prepare them, but you think that it is not of much use.
- You have time to prepare them, but you think that it should be the school's responsibility.
You feel that audio-visual aids are not advantageous.
Because your students show no interest when you use audio-visual aids.
Other teachers never use them, and if you use this may not be appreciated by others.
You do not get time to use audio-visual aids because you have to cover a lengthy syllabus.
Audio-visual aids are available, but there are no facilities in the classroom for their proper use.
Your school has enough audio-visual aids, but the distribution system is insufficient.

7. Do you think you can make your teaching more effective if (Please check / in the space provided at the left side of the questions).
Your school provides sufficient audio-visual materials and equipment including other facilities.
Your school has good distribution system.
The classrooms are in good condition for audio-visual utilization.
You have faith in the utilization of audio-visual aids.
You have more time to prepare audio-visual materials which the school cannot provide.

You have better understanding and knowledge of audio-visual procedures in teaching.

Your students show more interest when you use audio-visual aids.
QUESTIONNAIRE FOR STUDENTS OF HIGHER SECONDARY CLASSES.

You are studying in Class -------------------

1. Which method(s) is / are used in teaching in your class? (Please tick / in front of the method or methods given below:

--- Ordinary method, that is by reading text-books, doing exercises, and listening to the explanations given by your teachers.

--- There are other activities also, such as singing, dramatizing, acting by the students, etc.

--- The explanations are supported by other techniques such as photographs, pictures, specimens, and real objects, etc.

--- Slides, moving pictures, or other projections are used before, between, or after the lesson.

--- Radio, television, tape recordings, or gramophone etc. are used during or after the lesson.

--- Lessons are followed by demonstrations.

--- Vitalizing the lessons by excursions.

2. Do you like or dislike if your teachers teach you by:

<table>
<thead>
<tr>
<th>Like</th>
<th>Dislike</th>
</tr>
</thead>
</table>

--- Oral explanation
--- Writing words or sentences on the blackboard while explaining.
Like Dislike

-- Drawing pictures, cartoons, diagrams, charts, or graphs on the chalkboard while explaining.

-- Telling students to write words, sentences, or to draw pictures, etc. on the chalkboard while learning.

-- Using some visual aids such as maps, globes, real objects, models, pictures, etc. to simplify the lesson.

-- Demonstrating the lesson.

-- Taking you to real places (field-trip).

-- Taking you to the museum.

-- Using other activities such as dramatization.

-- Using projection such as slides, movies, or others.

-- Using gramophone, tape recording or radio.

-- Using television.

-- Asking you to participate in activities, such as experimentation, collecting specimens, making models, cut out articles from newspapers, note down topics from radio, drawing pictures or diagrams, collecting pictures for displaying, etc.