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A Survey of Literature Pertaining to In Service Training of Teachers in the Use of Audio-Visual Materials and Equipment

Lewis E. Patton
Central Washington University

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A SURVEY OF LITERATURE PERTAINING TO
IN SERVICE TRAINING OF TEACHERS IN THE USE
OF AUDIO-VISUAL MATERIALS AND EQUIPMENT

A Research Paper
Presented to
the Graduate Faculty
Central Washington State College

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

by
Lewis E. Patton
August 1962

THIS PAPER IS APPROVED AS MEETING
THE PLAN 2 REQUIREMENT FOR THE
COMPLETION OF A RESEARCH PAPER.

Robert B. Krueger
FOR THE GRADUATE FACULTY

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

The teacher trained more than ten years ago rarely had opportunities for audio-visual studies. Therefore, it is incumbent on the audio-visual director to provide such information for members of the teaching staff (20:534).

I. THE PROBLEM

Statement of the problem. It was the purpose of this research (1) to show the value of audio-visual aids in the learning process; (2) to determine common audio-visual materials and equipment used in the classroom; (3) to present the role of the audio-visual director in the in-service training program; and (4) to show the teacher's role in the program.

Importance of the study. Audio-visual materials and equipment are being used in all progressive schools. These materials are simply teaching tools, which should and can be mastered by the teacher and made an integral part of the learning process.

The difference between good and poor teaching often lies in the way teachers use local facilities that are of little or no cost. Administrators know that a little help

at the right time may strike a spark of enthusiasm among a group of teachers. We must realize the great dividends which come from attending to the small and very specific problems of teachers (19:299).

II. DEFINITIONS OF TERMS USED

Audio-aid. This refers to teaching tools or devices which convey meaning by the use of sound.

Visual-aid. This includes teaching tools or devices which convey meaning by picture or sight.

Audio-visual aid. This is a combination of audio and visual aids.

In-service training. This refers to a series of meetings during the school year, usually four or more two-hour sessions, emphasizing individual needs in the use and selection of audio-visual materials and equipment. This can also include any time spent by the teacher in pursuit of knowledge of audio-visual methods, materials, or equipment.

Student. This means a teacher who assumes the role of a participant during an in-service training program, and the pupil, upon the teacher's return to the classroom.

CHAPTER II

REVIEW OF THE LITERATURE

I. INTRODUCTION

How often is the teacher confronted by a student who says, "I don't understand it." If a student sees a concrete rather than a symbolic object, his knowledge and retention of that object is increased. Audio-visual instruction is an antidote for verbalism (16:2). By relating the non-verbal experiences of learners to the verbal, the teacher can make instruction meaningful. Audio-visual materials are a great help in developing a common meaning between teacher and pupil.

It is noted here that "Audio-visual instruction should not be regarded as a method of teaching" (16:6). Audio-visual materials are of value only when used as an integral part of the instructional process. Audio-visual materials are of value in the development of desirable attitudes because (a) they may be used to arouse the emotions and feelings and (b) we believe what we "see" (16:14).

II. THE USE OF AUDIO-VISUAL AIDS IN FACILITATING LEARNING

Dale (5:37) uses the following "Cone of Experience" as a visual aid to explain the inter-relationships of the various

types of audio-visual materials as well as their individual positions in the learning process:

Verbal

Visual

Radio-Records

Motion Pics

Television

Exhibits

Field Trips

Demonstrations

Dramatized Experiences

Contrived Experiences

Direct Purposeful Experiences

The base of the cone, direct purposeful experiences, represents reality itself as we experience it first-hand. It is learning by direct participation with responsibility for the outcome. People see on the basis of what they have experienced and see in terms of their own background. We can use symbols for a direct experience we have had, but symbols must stand for something, and they must be based on a certain amount of direct experiencing.

The second stage of the cone, contrived experiences, may be defined as a working model, sometimes better than the real thing. A teacher cannot bring into the classroom a ship, an airplane, a volcano, or the earth, but he can readily

bring in models or mock-ups to demonstrate the workings of the real item.

Dramatic participation gives the student an opportunity to reconstruct the experience. Plays furnish new problems for children to think about, and the answers are not always provided. A play that does not start currents of thought in the minds of the participants and the audience is a waste of time.

A demonstration is a means whereby pupils can see how certain things are done although it may require nothing more than observation on their part. Whether the demonstration is to be followed by activity on the part of the pupil depends on the nature of the problem.

Field trips may be another means of observing many things. They may lead to a more direct understanding on the part of the student. If they interview someone on such a trip, they are doing as well as observing. We must, of necessity, learn about life less directly, more vicariously. We cannot ourselves do all things, but we can learn by observing others do them. What the experience may lose in fullness it makes up in comprehensiveness and depth. Fortunately, there is little limit to what we can observe directly in the world if we have desire and perception--little limit except time and opportunity (5:13).

Exhibits, essentially something one sees as a spectator, generally involve no working with the material. An exhibit can be simple, calling for merely a few moments observation, or it can involve several sensory activities.

Some standards by Dale for exhibits are: (1) an exhibit is seen, not read; (2) put your exhibit where it is certain to be seen; (3) put only one big idea in your exhibit; (4) make your labels short and simple; (5) labels should be uniform and legible; (6) motion in an exhibit attracts attention; (7) be sure the exhibit is well-lighted; (8) color may add interest and attractiveness; and (9) sound and various mechanisms may add interest and attractiveness (5:168-170).

A motion picture concentrates on a few selected points. It unfolds with a compression of time and space, but we are only spectators and are some distance from direct experience. The basic values of motion pictures are that they can: (1) present certain meanings involving motion; (2) compel attention; (3) help clarify the chronology of time in any operation or series of events; (4) bring the past and the distant to the classroom; (5) enlarge or reduce the actual size of objects; (6) present a process that cannot be seen by the human eye--even by microscope or telescope; (7) provide an easily reproduced record of an event; (8) reach a mass audience at a low average cost per

person; (9) build a common denominator of experience; (10) offer a satisfying aesthetic experience; and (11) give an understanding of relationships of things, ideas, and events (5:191).

Still pictures, radio, and recordings are one-dimensional aids. Listening experiences can be very concrete or very abstract. All broadcasts and recordings are not necessarily helpful in learning, but if the speaker uses everyday words rich in association, the broadcast or recording may be concrete. The qualities of the still picture are that it provides a recognizable counterpart of the object itself, can be easily understood, and can create moods or emotions.

Visual symbols are not intended to reproduce the direct reality but merely to represent it. Visual symbols are used constantly in the classroom since they are indispensable timesavers and thought builders. There are eight kinds of visual symbols (5:268) used in learning. They are: (1) cartoons; (2) drawings and sketches; (3) posters; (4) diagrams; (5) flat maps; (6) charts; (7) graphs; and (8) comic strips.

The dangers of cartoons include oversimplification, bias, stereotyped ideas, and misrepresentation. The cartoon is a useful teaching device; like all emotionally charged media, however, it must be used with care and intelligence.

Posters make their point quickly, with simple means and on a scale visible at a considerable distance. They may be used to teach some specific item or subject matter, to communicate a more general idea, and to create an atmosphere immediately related to the curriculum.

The diagram is a visual symbol made up of lines and geometrical forms from which pictorial elements have been removed. It is wise to begin with the real item and gradually work toward the diagram since the diagram is merely a more abstract view of the original item.

Flat maps may be diagrams but are a special part of teaching generally treated in a separate classification. A good map does what you want it to do. A flat map should be used in conjunction with a globe. The characteristics of the flat map can be pointed out and the distortions shown by the use of a globe.

Charts are designed to symbolize by arranging the materials visually in a clarifying manner. The greatest danger in making charts is that of including too much material, thereby destroying clarity.

The graph is especially useful for showing quantitative data in visual form. There are five common types of visualized graphs: (1) pictorial statistics; (2) pie charts; (3) area and solid diagrams; (4) bar charts; and (5) line or curve graphs (5:293).

The crude art of the comic strip, with its garish colors and generally cheap effect, can hardly develop the aesthetic sensibilities in any desirable direction. But more harmful are the social and human values emblazoned by the comic strips; their fantastic "escapism" may cause readers to become less adjusted to reality. Surely the patterns of action implicit in the comic strip are nothing of which we can be proud. A great deal has been said of the comic strip as a device which debases reading. One critic alleges that by putting serious literature into comic strips we enable children to by-pass the reading of the originals--with consequent losses to them in terms of aesthetic experience, understanding, and sheer reading pleasure, and with serious dangers to the literacy of the country (3:299).

At the top of the cone Dale places verbal symbols. A symbol called "word" represents an experience. The ability to speak or read the word does not mean that you know the meaning of the word. The construction of the cone is such that the higher you go the greater the abstraction, but at every stage the learner builds verbal symbols. By first having the direct purposeful experiences, by doing and observing, the symbols come to have meaning to the individual.

The cone of experience as a visual aid explains the inter-relationships of the various types of audio-visual materials as well as their individual "positions" in the learning process.

Note that steps between direct experiences and pure abstraction, as progression is made upward from the base, move in an order of decreasing directness. These are not rigid, but tend to overlap. Concrete experiences become associated with abstraction when the process of memory begins to function.

The main distinction between audio-visual instruction and "other instruction" is a matter of emphasis. The former emphasizes the value of concrete imagery in the learning process. The latter stresses the importance of symbolic or verbal imagery.

III. ADVANTAGES OF AUDIO-VISUAL AIDS IN INSTRUCTION

The audio-visual movement has long passed the initial stages and become a potent factor in all training situations. The extent to which these valuable training aids are used and the degree of effectiveness with which they will be employed in any teaching situation will depend almost entirely upon the amount and quality of training the teacher has received. The factor retarding greater and more intelligent use of visual-sensory aids is the inadequate training of teachers to make proper use of the materials available (6:23).

Time and experience has taught us the following about visual aids:

- A. The use of visual instruction may be traced through the educational history of the race (6:24-25). In primitive times boys were taught to hunt and fish and girls to cook through imitation, observation, and participation plus the necessary spoken explanation. Early records were picture records. Cave men drew pictures to warn and inform. The Greeks utilized the school journey, the sand as a blackboard, and real objects or things in their instructional processes. Forerunners of modern education used visual instruction. Such famous pioneers as Comenius, Rousseau, and Pestalozzi emphasized it.
- B. Whereas schools of the past used visual materials, modern science and inventions have opened vast new possibilities in the development of concrete materials for teaching purposes.
1. The invention of the photograph and of photo-engraving have made possible the illustrations of magazines, newspapers, books, and school texts on a scale heretofore unimagined.
 2. The microscope and telescope have revealed the existence of worlds that were unknown a short time ago.

3. Stereographs and stereoscopes have brought the illusion of three dimensions to the classroom.
 4. The motion picture, with or without sound, has become a major factor for the dissemination of information, knowledge, and ideas.
- C. The introduction of visual materials into modern schools on a broad scale has enabled teachers to learn something of their use and value through experience. Some of the more general notions which have been developed as a result of actual experience are:
1. That visual aids are most effective when closely correlated with the course of study or curriculum.
 2. That visual materials will not supplant the textbook or teacher, but will supplement and increase the effectiveness of the teacher and text. Hence the term "visual-aids."
 3. That the most effective visual lesson is one that is treated as any good lesson should be handled. The mere exposure of children to visual materials will not, by some mysterious process, teach them. Teachers must prepare for the visual lesson in advance.

- a) Organized units of visual materials are desirable.
 - b) Teachers should be familiar with visual aids before presenting them.
 - c) Pupils must be held responsible for the content of visual aids presented.
4. That the organization and administration of visual materials must be such that they are available at the precise moment when the teacher wants them.
 5. That the inherent nature of visual aids-- their concreteness--is such that they should be excellent in quality and accurate in detail. Misinformation obtained through a visual aid is inexcusable.
 6. That a few pertinent illustrations are better than a score or more of less related ones. For example, the intensive study of a few excellent slides and stereographs is, in most instances, better than a succession of unrelated pictures.
 7. Visual aids should make accessible in the classroom that which is otherwise inaccessible. Visual aids are valuable also in recreating in the classroom familiar subject matter.

8. No one type or class of visual aids should be used to the exclusion of others. Each has its own value and use.

IV. THE ROLE OF THE AUDIO-VISUAL DIRECTOR

It is incumbent on the audio-visual director to provide information for the members of the teaching staff including: (1) general information for those whose training did not include audio-visual methods and (2) current information about new materials, equipment, and techniques for all the staff members (20:534).

Policies relating to audio-visual in-service training should include materials, equipment, physical facilities, funds, professional improvement, and other closely allied problems as the need arises (20:527).

The following films in audio-visual education and techniques may help teachers improve their knowledge in specific areas where they need help:

1. Art--Dry Paper Mounting
2. Bulletin Boards--An Effective Teaching Device
3. Chalk and Chalkboards
4. Chalkboard Utilization
5. Creating Cartoons
6. Facts About Projection
7. Feltboard In Teaching

8. Flannelgraph
9. How To Make Handmade Lantern Slides
10. Learning To Draw
11. Lettering Instructional Materials
12. Magnetic Recorder
13. Opaque Projector
14. Paper Sculpture
15. Poster Making
16. Social Studies Teaching Techniques
17. Using The Classroom Film
18. Wet Mounting Pictorial Materials

The films listed are available at the libraries of Central Washington State College, Washington State University, and The University of Washington.

Further services by the audio-visual director would be to provide a minimum amount of materials and equipment for the proper function of a school's audio-visual program.

Wittich and Schuller (20:535) give the following as basic minimum equipment:

16 mm. sound projector . . .	1 per 300 students
Filmstrip and 2" x 2"	
projector	1 per 300 students
Opaque projector	1 per building
Tape recorder	1 per 300 students
Record player	2 per building

AM-FM radios	1 per 5 classrooms
TV (all channel)	at least 1 per building
Overhead projector	1 per building
Screens (60" x 60" or larger)	1 per each two classrooms

V. THE TEACHER'S ROLE

Teachers want to learn how to make teaching and learning more effective, more permanent, and more enjoyable. The teacher who develops the skill of knowing when to turn to the blackboard, when to use a demonstration, refer to a picture, suggest an activity, choose the most effective material, device, or method not only does an efficient job of instruction but also a satisfying job that makes teaching and learning an enjoyable and remembered experience (2:36-37).

Several general competencies should be expected of all teachers in the area of instructional materials (2:38). They should:

1. Understand the place of sensory experience in learning.
2. Know the contributions that audio-visual materials can make.
3. Recognize the specific application of all types of instructional materials.
4. Have the ability to select and use materials effectively.

5. Know the sources of audio-visual materials.
6. Know the content of the materials in their own area of specialization.
7. Have the ability to make or direct the production of simple, yet effective instructional material.
8. Evaluate critically all instructional material before and after using, and maintain a file of instructional materials which have proved to be effective.
9. Have an alertness for new materials.
10. Regard audio-visual materials as teaching tools of the profession.

CHAPTER III

FINDINGS IN THE RESEARCH

I. THE STUDENT

Individuals may learn in a variety of ways. They may: (1) observe activities; (2) prepare a demonstration; (3) read a book; (4) watch a process unfold; (5) describe things seen; (6) listen to explanations; (7) write presentations; (8) plan work; (9) ask questions; (10) dramatize a situation; (11) solve a problem; (12) do exercises; and (13) see or hear instructional aid or device (10:11).

The individual learns only if the activity holds his attention, and the best attention compellers are audio-visual aids. They are potent starters and motivators. They add zest, interest and vitality to any training situation. As a result they enable students to learn faster, remember longer, gain more accurate information, and receive and understand delicate concepts and meanings.

One of the most important functions of audio-visual learning aids is to help to eliminate the existing rigid educational stratification between those with and without schooling. It has been stated many times that the common denominator of illiterates and non-illiterates has been made practically equal through training aids (18:33).

II. THE AUDIO-VISUAL DIRECTOR

The object of in-service training is to encourage the teacher to do a better job in the selection and use of audio-visual materials and equipment.

In setting up an audio-visual workshop the following ideas should be considered:

1. Develop an atmosphere in which people feel free to discuss and express their problems, their need of change, their feelings of difficulty and the areas where they need help.
2. Develop an expectation that there will be a change made by or in the teacher.
3. Develop a sense of shared interests and problems and a climate of mutual respect and understanding.
4. Adapt the program to meet the needs and interests of all members in this particular group.
5. Clarify the learning goals--what the teachers expect to accomplish through study, discussion, and practice.
6. Help teachers to understand why they have been performing as they have, the factors that make them want to change, and those that make it hard for them to change.

7. Decide what changes that can be made at present, and which changes can be made later.
8. Help the teacher to acquire and practice new skills. Plan to evaluate these new practices and experiments.
9. Relate the activity to actual situations in which the teachers will use it.
10. Provide continued reenforcement and help in applying what has been learned during the in-service training period.

III. THE TEACHER

The teacher should be an active participant; remember, we learn by doing.

1. Listen to the other fellow. It is particularly important to be non-judgmental in listening to the other fellow's ideas. Give him a chance to make his point.
2. Don't pretend to agree if you don't. Air your own ideas in an open and frank fashion.
3. Don't overvalue or undersell the outcome. What you learn cannot aid you unless you put it into practice.
4. You may expect that some of your ideas will be proven wrong and that you will make adjustments.

5. Through a constructive role of evaluation you can effect change.
6. The final evaluation you as a teacher can give in-service training program is when you find the material learned either works or does not work in your classroom.
7. Ask for help if you need it. Your building A.V. coordinator either knows the answer or knows where he can get it.

CHAPTER IV

SUMMARY AND CONCLUSIONS OF THE STUDY

I. SUMMARY

It has been the general attitude of the authors used in this research that the use of audio-visual materials has lagged behind the development of the materials. Since these materials are applicable over a wide range of subject matter areas and age levels, any teacher can improve his instruction through increased knowledge and use of these materials.

Administrators can be especially helpful by encouraging teachers to seek the assistance they need. They can give special assistance to new teachers by providing workshops in production techniques, in operation, and use of equipment.

No school or teacher is without audio-visual aids. News clippings and pictures can be utilized until more adequate facilities and equipment can be procured.

II. CONCLUSIONS

The learning process can be strengthened by the use of audio-visual materials. All teachers have some audio or visual material available, if only pictures, and with an in-service training program they can learn to prepare many more devices to aid them in their teaching.

Pupils learn more by doing than they do from passive learning, but not all areas of teaching blend with active learning. Audio-visual aids can make up this deficiency and turn a passive lesson into a really meaningful one.

Variety can be brought into the classroom with audio-visual aids. Students will take charge of a bulletin board and will gain much by keeping it current with other classroom activities. Tape recordings can improve speech or make a play become real by making a radio version of it.

A teacher-initiated in-service program would tend to be more effective than one initiated by the administration. Because of his general desire to do more effective teaching, the teacher often asks for help.

With the cooperation of the administration, under direction of the audio-visual director, an efficient program of in-service training can be initiated for the needs of a single teacher or an entire staff.

In all cases of in-service training, it is the pupils who benefit through the increased skills of the teacher.

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