AN EXPLORATORY STUDY OF MEDIA INSTRUCTION OF

PRE-SERVICE AND IN-SERVICE TEACHERS AT

OKLAHOMA STATE UNIVERSITY BASED ON

AN ANALYSIS OF THEIR MEDIA

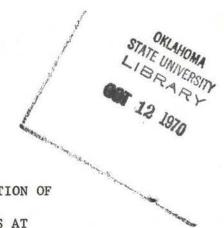COMPETENCY AND

UTILIZATION

By

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PREFACE

The purpose of this investigation was to explore the media

instruction of pre-service and in-service teachers at Oklahoma State

University based on analysis of their media competency and utilization.

Such an accomplishment is never the effort of only one person. It is

only produced in conjunction with the direction, the efforts, and the

prayers of other people.

This investigation could not have been done without the help of

my advisory committee: Dr. Kenneth Wiggins, Chairman; Dr. Gene Post,

Dr. L. Herbert Bruneau, Dr. James Webster, and Dr. Donald Frazier.

To Dr. Wiggins I express thanks for direction and advice

throughout the program of this study -- to Dr. Post, sincere apprecia-

tion for working under his direction where I gained the practical

application and knowledge in the field of Educational Media -- to

Dr. Bruneau, who directed me to Oklahoma State University, for his

help and encouragement which initiated my interest in this program.

Dr. Frazier deserves thanks for his help and assistance in developing

the statistical analysis -- Dr. Webster, for the inspiration cast by

his professional image.

A special love is held for Karen, Peggy and Paul, my three

children, and for my wife, Jean, who made this effort worthwhile.

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CHAPTER I

INTRODUCTION

We are living in a world of change. Changes in society often

bring changes to its institutions, including education. Of all the

changes taking place in the American society, none is more extensive

or important than that found in education. Since the passing of the

National Defense Education Act of 1958, educational methods and

practices have changed substantially. Today the combined effects of

the knowledge explosion, the population explosion, and the development

of instructional technology have caused traditional methods of class-

room instruction to become outmoded and inadequate, and have created

a necessity to discover more effective methods of teaching larger

groups, yet at the same time to meet the individual needs of students.

In many situations across the country, teachers still have the

option of using or not using instructional technology in the classroom.

Students may still learn and get by, but in the near future teachers

will not have this option. Since 1959, when the National Educational

Association established the project on instruction, some educators have

been actively seeking to utilize instructional technology to solve

some of the problems of numbers of students, space, and time. Research

has indicated that learning is more effective when instruction has been

integrated with media. In recent years, Congress has broadened

federal support to education to include the purchase of instruction

materials and equipment. Although the use of instructional media is here to stay and increasing amounts of audiovisual materials and equipment are being purchased by the schools and public, we find that teachers still do not make extensive use of them.

As an ever increasing variety of materials and equipment becomes available, teachers need to familiarize themselves with the new developments in order to use them constructively and effectively. Oklahoma State University currently offers basic courses in media for both pre-service and in-service teachers. It will be the concern of the investigator to analyze the in-service and pre-service teacher education program and, to explore the competency of the teachers after taking these courses and to determine the extent of their utilization of media in the classroom. This study will contribute significantly to future planning of educational media courses at Oklahoma State University.

The Nature of the Problem

Robert E. DeKieffer (4) suggests that media research is important to educational improvement, vital in developing new methods and techniques to meet the critical educational problems, and important to determine the role of the teacher in a never-ending struggle for creativity in learning and teaching. Allen (1) summarized the 1960 Audio-Visual Leadership Conference at Lake Okoboji and stated that the importance of media research was to operate effectively in improving learning and teaching; to define and give direction to the present and future role of audiovisual instruction in the educational process, techniques, materials, equipment, and administration; and

to evaluate present practices with respect to instructional materials
in our education system.

Meierhenry (17) stated the following:

Studies of effective instruction continue to identify the
role of the classroom teachers as highly significant.
Whether a student is exposed to excitement or drudgery, to
intellectually stimulating or pedantic teaching, to student-
or teacher-centered learning will depend upon his teacher.
Even in classrooms where technology is employed widely and
wisely, its success or failure depends on the extent to
which the teacher perceives and applies positively new in-
structional models. It is for these reasons and others
that there is a great and continuing concern for the extent
to which pre- and in-service programs provide for the
development of media competencies of teachers.

A need for greater attention for the development of media
competencies is cited by McMahan (15) and is reported in the following:

Surveys of the amount of emphasis given to development of
media competencies by colleges and universities show a
shocking amount of lack of attention in this crucial area.
One, for instance, made by the National Council for Accredi-
tation of Teacher Education, revealed that only 26% of its
affiliates require audiovisual instruction. Some universi-
ties, unable to provide a required basic course for their
large numbers of prospective teachers, are seeking other
alternatives--an integrated methods-media course, media
experiences during student teaching, or a tentative com-
mitment to development of audiovisual competencies in pro-
fessional education courses. Unfortunately even when media
experiences are currently provided they function all too
frequently as an appendage to the 'real' educational pro-
gram or they consist only of development of necessary, but
low level, competencies in machine operation.

According to the teacher media project edited by Meierhenry, (17)
the out-pouring of new technologies, along with uses of adaptations
of older resources, suggests changes in activities and processes
involved in the teacher-learner act. Since adaptation involving
teaching also has implications for the teacher preparation program,
the teacher competence project was to identify these competencies
new teachers would need and then specify the types of teacher-education

activities needed to produce them.

Because there are many rapid changes that are occurring in content, methods, and materials, along with new insights into learning, the best that can be done in the formal teacher education program is to present what is currently known. This viewpoint suggests that the formal teacher preparation program must change rapidly in response to what is being discovered and applied. It also suggests that the schools in which the teachers are employed have responsibilities for identifying the competencies needed by their staffs and assisting them to keep up to date through various means. The formal teacher education program which took place two or three semesters ago now becomes an essential part of the continuing education of classroom teachers. Institutions of higher education as well as the elementary and secondary schools have a responsibility for assisting prospective and practicing teachers to understand and apply what is known about teaching at any given time. The Teacher Competencies Project, therefore, turned from one in which it was assumed that competencies needed by teachers in the use of the newer media would be static to one in which the skills, understandings, and attitudes are constantly changing while the process is fixed.

Meierhenry (17) states that there are competencies which all teachers should have and should be incorporated into the teacher education program. The competencies are:

1. Theory in teacher education.

2. Message design (popularly known as "programming"), the development of an instructional sequence or an instructional system.

3. Skills in production of materials as well as in opera-
tion of equipment.

He further declares that "media competencies must now be deliberately

planned with purposes and function to be met rather than developed

haphazardly, incidentally or not at all. In order for the teacher

to operate successfully in the modern classroom he must have frequent

and personal encounters with media, their design and utilization. It

is the responsibility of teacher education institutions to develop

such competencies in their student."

Probably one of the better overall media programs in Oklahoma

for teachers can be found at Oklahoma State University in the

College of Education, which offers three basic courses in media in-

struction for pre-service and in-service teachers. The college is

interested in developing quality education and keeping teachers abreast

of new developments and technology in instruction; it, as a result,

needs to evaluate existing programs and consider the development of

new programs. The media department must analyze the past performance

of instructional methods used. This calls for an analysis of the

finished product (the teacher) in the classroom. This study will

concern itself with analysis of the competency and utilization of

instructional media by the pre-service teacher and the in-service

teacher. It will further determine whether there is any relationship

between competency of the two groups. It is generally accepted that

the in-service teacher takes media instruction not as a requirement

but in hopes of becoming more competent in the utilization of the

various media in their instruction.

It was the hope of the investigator that this study would

accurately evaluate the media program at Oklahoma State University and show significant difference in teacher behavior when tested by analyzing teacher competency and utilization of instructional media. Only by evaluating when media instruction is most effective, can construction developments take place in the future teacher education programs at Oklahoma State University.

Statement of the Problem

The purpose of this study was to analyze the media instruction of pre-service and in-service teachers at Oklahoma State University and to determine if there was any significant difference in media competency and utilization between them. The teachers received the same media instruction, but at different times in their educational programs at Oklahoma State University. This study further attempted to determine if years of teacher experience could be a factor affecting media competency and utilization in the classroom. Results from this study can help identify elements in a teacher's media training and experience background that influence teacher behavior, and their effect on media competency and utilization. Answers to these problems will be helpful in the evaluation and future development of media instruction at Oklahoma State University.

Answers to the following questions were sought:

1. How effective is media instruction at Oklahoma State University in developing competencies and are these competencies being utilized in the classroom?

2. Is there a significant difference between elementary in-service and pre-service teacher training in media when checking competency and media utilization in the classroom?

3. Does teacher experience have any effect on media
   competency and utilization when dividing teachers
   into groups of 1-5, 6-10, and 11 years of experience?

It is suspected that pre-service and in-service teachers will
have similar media competence, but it is the researcher's opinion
that in-service teachers who have had teaching experience will score
significantly higher on the utilization portion of the study.

The Hypotheses

The study was designed to be an exploratory study in which the
objective was to analyze the Media Program at Oklahoma State University.
The dependent variables were teacher competency and utilization of
media. The independent variables were in-service media instruction,
pre-service media instruction, no media instruction, and teaching
experience. To test the variables, the following hypotheses were
listed in the study proposal--

1. Ho: There is no significant difference to be found
in competency scores obtained in this study between elementary
teachers who receive their media instruction pre-service, in-
service, or those who receive no instruction.

2. Ho: Elementary teachers who obtain their media in-
struction in-service (after some teaching experience) exhibit
a significantly greater frequency of media utilization than
experienced teachers who received their media instruction
pre-service and those having no instruction.

3. Ho: Teachers, when grouped by experience of 1-5
years, 6-10 years, and 11 years, show no significant
difference in their media competency.

4. Ho: Teachers, when grouped by experience of 1-5
years, 6-10 years, and 11 years experience, show no signifi-
cant difference in their media utilization.

5. Ho: There is no significant interaction between
variables of experience or time of instruction and media
competency.

6. Ho: There is no significant interaction between variables of experience or time of instruction, and media utilization.

Limitations of Study

There are several limitations involved in this study that may be influencing factors.

1. The population has been selected only from public school systems that have acceptable personnel and equipment to qualify for this study.

2. Teachers taking their media instruction before teaching and teachers taking their media instruction after some experience will have had their media instruction under Dr. Gene Post at Oklahoma State University in the last five years.

3. Teachers with no media instruction will be selected from the same school districts as those listed in limitations number two.

4. Since many variables such as sex, age, and subject taught will not be controlled in this study, information on these variables can only be considered in light of their measure of control.

5. Since this study involves ex post facto research, no manipulation of the independent variable is possible. The population cannot be randomized and improper interpretation can possibly result.

Clarification of Terms

Several terms are used frequently in the study, and a basic definition of these terms is essential to the understanding of the study.

MEDIA - Instructional materials, techniques and equipment used by teachers to supplement or substitute for traditional means of communication.

PRE-SERVICE TEACHERS - Elementary teachers who received their media instruction as undergraduates.

IN-SERVICE TEACHERS - Elementary teachers who received their media instruction after having some teaching experience.

MEDIA INSTRUCTION AT OKLAHOMA STATE UNIVERSITY:

      4122 - UTILIZATION OF INSTRUCTIONAL MATERIALS. Lab. 1. To be taken as part of Block B in senior year. Designed to familiarize students with a broad range of instructional materials and equipment, and with principles and techniques related to their selection, utilization and evaluation.

      5750 - AUDIO-VISUAL EDUCATION WORKSHOP. 2-4 credits. Prerequisite: graduate standing or consent of instructor. Designed to provide workshop experience for groups of teachers in preparing curriculum materials with various types of equipment and materials and experiences in applying them. Emphasis placed on group projects and individual problems.

MEDIA COMPETENCY - Refers to a number of specific skills and understandings of specific skills and understanding associated with media that the teacher possesses. An instrument was used to determine media competency.

MEDIA UTILIZATION - Refers to frequency of the use of media equipment, materials, and techniques by teachers in this study. An instrument was used to determine media utilization.

<div align="center">Assumptions of the Study</div>

The following assumptions will be made:

1. The instrument used in this study is one developed and used in a similar study by Dr. Charles Edward Streeter (21) and is valid in its measuring ability of the variables under study.

2. The sample selected for this study is representative of students receiving media instruction at Oklahoma State University.

3. The control group is representative of those not receiving media instruction.

Significance of Study

This study is designed to be an exploratory study of the effectiveness of two means of instruction. An attempt was made to analyze the teacher competence and utilization of media in individual school systems. Since Oklahoma State University is in the process of developing a comprehensive media instructional program for teachers, this study will be significant in that it will assist the department in assessing the quality and productivity of instruction that the students had obtained in the past. It will also be a guide for future programs and in-service instruction in media.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter of the study is designed to present the research
and theoretical background related to the topic under study. It is
presented in three parts with the first section dealing with the
development of pre-service and in-service media education. The
second section is devoted to a literature review of media competencies
needed by teachers. The last section cites the need for more teacher
use of media in the instruction program and its relationship to success
in teaching and the student learning process.

Pre-Service, In-Service Education

Until recently the literature concerning media utilization reveals
few studies which have been conducted to evaluate methods of conducting
instructional media courses for pre-service and in-service teachers.
One of the first teacher education programs for visual instruction
was offered in 1918 by the University of Minnesota. It was later
followed by the University of Kansas and North Carolina State Teachers
College (4). The desire to evaluate media instruction resulted in
several surveys that were conducted to analyze the different programs
in effect. Saettler (20), summarizes:

1. The McClusky National Survey of 1923. F. Dean McClusky
   conducted a nationwide survey of visual instruction
   administrative practices as part of the investigations
   made by the Judd Committee of the National Education
   Association. In the process of making this survey,
   McClusky and his assistants uncovered much valuable
   data concerning teacher education. In general, two
   types of instruction prevailed. One is characterized
   as "training in service" and the other as "training in
   preparation for service." It was observed in the sur-
   vey that much training in-service has been concerned
   with the technique of handling visual equipment rather
   than the technique of instruction.

2. The National Academy of Visual Instruction Survey. In
   1924, the National Academy of Visual Instruction made
   a survey indicating that twenty-three educational insti-
   tutions were offering courses in visual instruction as
   electives. They were offered in summer sessions in three
   institutions. The survey also found that a type of
   teacher education in visual instruction was offered in
   teacher institutes in Berkeley, Detroit, Newark, and
   Kansas City.

3. In 1926, a committee on teacher education recommended
   to the Department of Visual Instruction of the National
   Education Association that a definite laboratory course
   be established for student teachers in service. The
   committee's report also pointed to the fact that several
   teacher institutions were offering courses in visual
   instruction and that the University of Wisconsin had
   created a professorship in visual instruction.

4. In 1936, W. Gayle Starnes's comprehensive study showed
   a significant increase in visual instruction.

5. A survey made in 1940 by the Office of Education showed
   that 114 colleges and universities, comprising 12 per-
   cent of the 933 educational institutions whose catalogs
   were examined, offered a total of 140 courses, usually
   in the department of education. A National Education
   Association questionnaire was sent out this same year
   to 150 educational institutions offering courses for
   prospective secondary school teachers. Of the seventy-
   six returns, forty-two colleges reported that they
   offered ninety-two courses. All these surveys revealed
   a need for teacher education in the use of audiovisual
   materials.

By 1922, twenty-one education institutions offered courses in

visual instruction, usually in summer sessions. By 1937, significant

growth was noted in that thirty-seven new courses were initiated but the majority were still short courses and off-campus workshops (20).

DeBernards (20) and Brown (20), Hite (10), and Zimmerman (20) have studied the problem of knowledges and skills needed by teachers to use audiovisual materials effectively and have designed courses to provide such knowledges and skills. Most of these researchers agree on the basic knowledges and skills necessary to make the fullest use of audiovisual materials. However, many teachers lack this necessary training.

Noel and Taylor (20) conducted nationwide studies to determine the extent to which state departments of education were engaged in audiovisual activities within their own states. They found that, as a whole, state departments of education have increasingly recognized the importance of audiovisual materials in teaching. This is evidenced by:

1. The increased number of personnel and services provided;

2. The growing concern for better training of teachers in the use of audiovisual materials;

3. The increased number of states requiring audiovisual courses for teachers, administrative and supervisory personnel, and librarians;

4. The general acceptance of audiovisual services and activities as responsibilities of state departments of education;

5. The general enthusiasm and support generated by the passing of the National Defense Education Act, which has augmented and extended the services of state departments of education in the new media field.

De Kieffer (4) has conducted two studies of the status of
teacher training in the United States. The second study indicated
that there was an increased emphasis on the training of teachers in
institutions of higher learning over a ten-year period. Furthermore,
the number and variety of courses offered by these institutions had
sharply increased. In the first study, the greatest deterrent to the
use of audiovisual materials in the classroom seemed to be the lack
of funds, while in the second study, the greatest deterrent was
credited to apathy. De Kieffer reported in 1959 that there were 560
colleges and universities offering audiovisual courses for teachers.

It is becoming more common for states and universities to require
an audiovisual course for teacher certification; however, rising
subject matter requirements are leaving less time in the students
program study for special audiovisual courses. The need for in-service
programs is well established. The rapid expansion of knowledge, which
has been reported extensively over the past several years, and its
effect on changing methods and in developing technology utilized in
the classroom are major factors in making the in-service education
of this group necessary.

> Ebel (5) reports that the need for programs to upgrade the
> performance of teachers has been stated throughout such works
> as Moffit's (1963), where emphasis is placed on the continuing
> obsolescence of knowledge and methods of teaching. Without
> planned programs for upgrading their work, individuals who
> have not learned of the potentials of, and issues regarding
> team teaching, teaching machines, and programmed learning
> as well as other developed techniques, will remain isolated
> on an educational island remote from innovative practices
> and new knowledge.

Corey (2) has reported the problems and needs in this field. He
emphasized planned programs in contrast to independent attempts by

teachers to improve themselves. In-service training can help

experienced teachers improve their teaching practices by showing them

how to use audiovisual media. In-service programs can be most

effective, according to Flanders (6), when they follow these

guidelines:

1. Proposed ideas about teaching and learning must be
   organized into concepts which have meaning in terms
   of overt behavior.

2. Concepts about teaching and learning become useful
   to the extent that they can be applied personally--
   related to the teacher's own behavior, his own pupils,
   his own classroom.

3. Insight into principles of effective teaching comes
   about through personal inquiry.

4. Teachers should have opportunities to practice or try
   out techniques or procedures during the in-service
   program.

5. Emphasis should be placed on resources that enable
   teachers to implement the trial of new concepts and
   methods.

6. Teacher participation in the in-service program should
   be voluntary.

7. Teachers should have ample opportunity to evaluate the
   in-service training program.

Kinder (12) noted the need for in-service programs in audiovisual

education and suggested the following ways to train teachers:

1. Hold institutes, workshops, demonstrations.

2. Organize audiovisual courses.

3. Provide for individual conferences between teachers
   and audiovisual supervisors.

4. Encourage teachers to make frequent visits to the
   audiovisual center.

5. Produce and distribute study guides, pamphlets,
   newsletter, service bulletins, and utilization
   suggestions.

6. Provide teachers with a comprehensive and up-to-date catalogue of materials.

7. Arrange for a collection of audiovisual books and journals in each school building.

8. Schedule previews and screening sessions.

9. Send building representatives and coordinators to selected conferences and conventions.

10. Give building coordinators some responsibility for assisting teachers in their buildings.

11. Promote inter-school and intra-school teacher visitation.

12. Encourage teacher production of instructional materials.

Media Competencies in Teacher Education

Different surveys of the amount of emphasis given to development of media competencies by colleges and universities show a shocking lack of attention. One was made by the National Council for Accreditation of Teacher Education (15) and reveals that only twenty-six percent of its affiliates require audiovisual instruction. Some universities have only a tentative commitment to the development of audiovisual competencies in professional courses.

Several lists of audiovisual competencies have been developed to guide the development of pre-service and in-service programs of teacher education. One of the first is reported by Meierhentry (18) of the activities of Herbert Hite at Washington State in the 1940's. De Barnardis and Brown also made one of the first attempts to identify skills and competencies needed by teachers. It included a list of some twenty or more media competencies that were submitted to 150 teachers, administrators, and supervisors to rate. Utilization and

selection were considered more important than mechanical and
productions competencies.

In 1947, the American Council on Education made a statement
prompting the systematic identification of teacher competencies. That
same year the California State Department published its own list. By
1950 the DAVI committee on Accreditation of Secondary Schools published
Evaluation Criteria for Audio-Visual Instruction Materials Service. It
subscribed to the need for upgrading competencies in audiovisual
education. Saettler (20) reports on the first comprehensive evaluation
instrument devised by Schwartz, 1950. By 1954 the Department of
Audio-visual Instruction of the NEA released new standards against
which the work of the teacher education institution might measure
itself on a self-appraisal basis. Other individuals active in the
1950's in development of audiovisual competencies listed were David
Pascoe, Paul Imbrack, and Frederick White (7). With the interest
generated by the 1958 Lake Okoboji Audio-visual Leadership Conference,
the Department of Audio-visual Instruction of the NEA devoted the 1959
issue of the audiovisual instruction (11) to the subject of teacher
education. One of the articles published by Fulton and White in the
Phi Delta Kappa titled "What Constitutes Teacher Competence in
Audio-Visual Communication" (11) listed media competence under four
headings:

1. Proficiency in selection and evaluation of materials.

2. Proficiency in production of simple instructional
    materials.

3. Proficiency in the utilization of appropriate in-
    structional materials.

4. Proficiency in preparation and use of facilities.

Since that time, audiovisual instruction has developed in mass productions fed by appropriations from the federal government and by research studies that prove its usefulness. One of the largest and most recent contributions to the lists of media competencies was the project headed by Meierhenry (17) titled, "Media Competencies for Teacher," which new teachers being educated would require and which specified the types of education activities needed to produce them. This project, sponsored by the United States Office of Education, was primarily a compilation of position papers by noted educational media specialists. It was an attempt to survey past studies and then develop a list of competencies for teachers. This most recent list of competencies is basically the source that Streeter (22) used in developing his Instrument and the one used in this study.

Meierhenry (18) reports on recent activities of different organizations that are studying teacher competencies. One, the Associated Organization of Teacher Education, has been considering that perhaps certification should be based on teacher performances rather than the other more traditional bases such as college hours and years of experience. This would require spelling out in behavioral terms what is meant by acceptable teaching performance including the use of media. It may require raising the accreditation standards in this field.

Utilization of Educational Media

Most of the studies that are concerned with the utilization of media deal with a single medium and very few are reported in the literature on its general use. Streeter (21) refers to two studies of

the pre-Sputnik era by Hite Imbrack and lists the following factors affecting the use of media in the classroom. They are:

(1) Teachers who have had training (in-service or pre-service) use more media in their teaching and use it more effectively.

(2) Audiovisual coordinator plays an important role in the audiovisual program.

(3) Teacher inertia was an outstanding deterrent to film use.

(4) Teachers who projected films in their classrooms, ordered films shortly before using them, and also prepared some of their own materials, were more frequent users of media.

Eleanor Godfry's (8) two-part study reported on how extensively media resources were used by some 11,000 classroom teachers in 572 schools in the school year 1961-1962. Her findings revealed that the subject taught was the most important variable affecting utilization. Elementary teachers were also found to use media more frequently than secondary teachers.

Torkelson's (23) experimental study of patterns for improving the preparation of pre-service teachers in use of audiovisual materials and their effect on students was conducted from 1959-1963. This study was based on the effect of four different forms of instruction. They were media integrated with methods courses, self study, separate courses and student teaching. The results showed no statistical significance between any of the four forms of instruction. Elementary teachers utilized media more frequently than secondary teachers.

Streeter (21) reports on a recent study by Oliver, who attempted to measure the effect of educational media training in the pre-service

preparations of teachers and the effect on practicing teachers. This project conducted from 1959-1962 involved thirty-six percent of the Georgia school system. Oliver (19) conducted a survey of some 275 supervisors of practice teachers and their use of media. The findings are:

1. ...elementary supervising teachers used all types more frequently than did secondary school teachers.

2. Supervising teachers who had been in the classroom teaching for a longer period tended to use the types of media considered in the project more frequently than those with less classroom teaching experience.

3. A relationship seemed to exist between the types of media used by supervising teachers and the subject fields in which they taught.

4. Competence in the use of media seemed to increase with the number of years of supervision.

A second phase of the study compared the effectiveness of the training of teachers who received their training pre-service with those who received their training after some teaching experience. No statistically significant differences were noted, but Streeter (21) listed the following:

1. Subjects with training were more aware of media available to them individually as classroom teachers than subjects without such training....

2. The group with training considered that a variety of media was more necessary to effective teaching than did those without training.

3. ...those who had received training used media which required specific information and skill more frequently than did those of the control group with no pre- or post-graduation training.

Up to 1959, according to Allen, (1) "The research in the area of teacher education to utilize new educational media with maximum effectiveness is characterized by status studies and questionnaire

surveys. Practically no experimental research has been conducted on
ways to train teachers, either in colleges or universities or in in-
service training situations."

The major conclusions from the evaluation type surveys, according
to Allen (1), were that (a) teacher inertia is an outstanding
deterrent to the use of media, (b) a small percentage of the teachers
use the greatest percentage of materials, and (c) teachers with prep-
aration used more media and with greater effectiveness. The media
competencies' project has sparked many similar projects such as the
TEAM Project (3), AACTE Media Project (13,14) and research studies such
as C. Edward Streeter's (21) study of teacher competency and classroom
utilization of educational media, which serves as a guide for this
study.

Summary

Most writers agree that the need for continuous updating in the
field of educational training is necessary to keep abreast of tech-
nological change.

Saettler (20) summarizes the growth and development of media
education from 1918 through 1940. In the late 1940's media instruc-
tions across the country, so the concern of educators shifted to the
quality of the training being offered in the different institutions.
Soon after this period there began to appear, in the research
literature, different researcher's ideas of the skills and knowledge
needed by teachers to make fullest use of audiovisual materials. After
De-Kieffer's (4) two studies of 1959 and the Lake Okoboji Audio-Visual
Leadership Conference (1) of 1959, information derived from these

sources stimulated research in determining the competencies in media

needed by classroom teachers, and efforts were made to see how effec-

tively they were utilizing the media in the classroom. The most out-

standing research to date was the "teachers competencies project"

carried out under the direction of Meirhenry (17). All research points

to the concern that institutions need to be contantly evaluating their

media training for classroom teachers. As a result this study is an

attempt to evaluate the media training of pre-service and in-service

teachers at Oklahoma State University and the competencies developed

as a result of this training and how frequently they are utilizing

media in the classroom.

CHAPTER III

METHODOLOGY AND DESIGN

Description of the Sample

This study is an exploratory analysis of the media competency
and utilization of elementary teachers who received their media instruc-
tion pre-service or while in-service. It is conducted with the aid of
Dr. Gene L. Post, Director of the Educational Material Center of Okla-
homa State University. Five school systems were selected in Oklahoma
to participate in this study. To reduce the variables involved, the
criteria for selecting the five systems were based upon the following:

1. The systems should have a number of elementary teachers em-
   ployed who had their media training in the last five years at
   Oklahoma State during their pre-service training or teachers
   who had media training while in-service or those who had no
   media training at all.

2. Systems were selected on the basis of having equal and ade-
   quate equipment and media personnel. This information was
   obtained by an equipment inventory of each system and inter-
   views with the media consultant in each district.

To verify the location of the subjects in the study and deter-
mine the extent of their media instruction, the author made a check
of the records of the Oklahoma State University placement office.
The selected school systems were asked to participate in this study
and accepted the invitation to do so. A copy of the letter used is
included in the appendix. After visiting the school systems and ob-
taining an equipment inventory of the buildings involved, the

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investigator found four of the original five systems would meet the requirements. They were: Guthrie, Oklahoma; Ponca City, Oklahoma; Sand Springs, Oklahoma; and Stillwater, Oklahoma. All elementary teachers in the Guthrie and Sand Springs School system were delivered a questionnaire. In Ponca City and Stillwater elementary teachers in 2 buildings from each system met the criteria stated earlier and all teachers in these schools were delivered questionnaires.

Questions were delivered to a total of 162 teachers. A space was provided on the questionnaire for the teachers to indicate the extent of their media training and where they obtained it. One hundred eighteen questionnaires were returned and of these one hundred five proved to be completed questionnaires receiving their media training at Oklahoma State University or having no media training at all. Table I indicates how the sample fitted into the different categories.

TABLE I

SAMPLE DISTRIBUTION

Experience	Training Pre-Service 1	In-Service 2	None 3	Total
(1-5)	18	12	8	38
(6-10)	1	8	3	12
(11$^+$)	11	33	11	55
Total	30	53	22	105

Design of the Instrument Used in the Study

A building inventory was first needed in order to acquire the nec-
essary information for this study. It consisted of an accounting of the
equipment, supporting personnel, production materials and physical
plant. This inventory was adapted from the one used in Streeter's study
in Michigan (2). It was filled during the interview with the media
director when the author visited the school. A copy can be found in
the appendix.

The instrument used to indicate the teachers' professional back-
ground, media competency and frequency of media utilized was a question-
naire adapted with permission from Streeter. It is a three-part ques-
tionnaire. The first section of the instrument deals with training
teaching experience, sex, subject and grade level taught and relevant
room conditions. Space was provided for teacher comments to indicate
barriers to the utilization of media in teaching situations.

The second part lists 47 media competencies and asks the respond-
ent to circle the number before each item if he feels competent in
performing that skill or understanding that particular manipulation.
Streeter (22) points out that the 47 competencies were gleaned from the
Meierhenry study. Media competencies were obtained on each individual
by totaling the number of competencies a teacher said he or she
possessed.

The third section assessed the frequency with which the teacher
used various educational media. A lined scale (1 through 20) was
provided to the right of each medium tested and the teacher responded
by circling the number representing the number of times he used each

medium. This scale assumes twenty teaching days in a month. The total media frequency utilization scores were obtained by summing the responses of each individual.

A sample of the slightly revised questionnaire was given to two class groups of graduate students and revised again. A copy of the instrument with the introductory letter to the subject can be found in the appendix of this paper.

Data Collection

The instrument given to the subjects in this study, with a cover letter signed by Research Directors, was placed in the teacher's mail box in the school, or as in the case of one school system, the instrument was mailed to the home of each teacher. A stamped return envelope accompanied each questionnaire for the return of the results. A total of 162 teachers received questionnaires -- 105 met the criteria stated previously in this study and were used in the statistical analyses.

Analytical Procedures

The data received in this study was analyzed considering the fact that there were two factors, training and experience, each with three levels. Training was subdivided into pre-service, in-service and no training. Experience was divided into 1-5 years, 6-10 years, and 11 plus years. A separate multiple analysis of variance was done for each of the dependent variable's competency and utilization. The confidence level for acceptance of the hypothesis stated in this study were set at the .05 level. An analysis was performed to check the

possibility of interaction between experience and training. Since

the data was unbalanced, not containing the same number of observa-

tions per experience and training cell, the data was run on the Okla-

homa State University Computer Center's "Doolittle Program," which

analyzes the total sums of squares into various sources. After check-

ing the interaction factor the author continued the remaining analysis

according to the method given in Franklin Graybill's (9) book,

An Introduction to Linear Statistical Model, particularly chapter 13,

entitled "Two Way Classification with Unequal Numbers in the Subclass."

CHAPTER IV

ANALYSIS AND RESULTS

Introduction

This research was an exploratory study of the media instruction of

pre-service and in-service teachers at Oklahoma State University based

on an analysis of their media competency and utilization. The findings

presented in this chapter are based upon a statistical analysis of the

data obtained from the population. There were two factors in this

study, namely training and experience, each with three levels: pre-

service, in-service, no training, and 1-5 years, 6-10 years, and 11

plus years experience. A separate analysis was done for each of the

measured response variables, namely competence and utilization.

Results of Hypothesis Tested

Since this study involved more than two groups divided into more

than one classification, the statistic analysis of variance was chosen

to test the hypotheses. The hypotheses were analyzed according to the

method given in Franklin Graybill's (9) book, An Introduction to

Linear Statistical Models, particularly Chapter 13 entitled "Two Way

Classification with Unequal Numbers in Subclass." This was necessary

as the data was unbalanced. The data was run through Oklahoma State

University's Computer Center's "Doolittle" program, which partitions

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the total sum of squares into various sources. Table II is a summary

of the means for the measured response variable competency. Table III

is a summary of the measured response variable utilization.

It was logical to check for interaction first prior to testing

for the statistical significance of the main categories, hence number

five and six hypotheses were analyzed first. If the interaction mean

squares is not significant, it would then be possible to combine the

interaction sum of squares with the error sum of squares, to produce

a new error term which is based upon a larger number of degrees of

freedom. This then is the number of degrees of freedom in the original

error term plus the number of degrees of freedom in the original

interaction.

Interaction Between Variables

The first hypothesis examined in this study was as follows:

5. Ho: There will be no interaction between variables of

experience and time of instruction and media competency.

The results are as follows:

Source Total	df	Sum of Squares	Mean Squares	F Test
Training	2	8709.6542		
Experience	2	1580.0584		
Training x Experience (interaction)	4	108.1895	91.5776	
Error	96	6685.096	69.3239	$\frac{91.5776}{69.3239}=1.3210$

In this case the significance level for testing the presence of

interaction is larger than .1; consequently training by experience

interaction is negligible. Therefore, Ho: is accepted, based upon

TABLE II

Competency Means:

Experience	Training Pre-Service 1	In-Service 2	None 3	Total 4
(1-5)	24.39	26.50	16.50	23.40
(6-10)	40.00	25.00	23.33	25.83
(11$^+$)	26.55	28.88	17.09	26.06
Total	25.70	27.75	17.73	25.07

TABLE III

Utilization Means:

Experience	Pre-Service 1	In-Service 2	None 3	Total 4
(1-5)	79.89	70.83	48.75	70.47
(6-10)	56.00	74.13	94.67	77.75
(11$^+$)	104.18	116.42	68.00	104.29
Total	88.00	99.72	64.64	89.02

the .05 level of significance subscribed to earlier in this study.

The results are:

Source Total	df	Sum of Squares	Mean Squares	F Test
Training	2	19176.1666		
Experience	2	24049.7677		
Training x Experience (interaction)	4	10349.89448	2587.6736	
Error	96	240134.18	2501.3977	$\dfrac{2587.6736}{2501.3977}$

Again in this case, the significance level of the F-test for listing the presence of interaction is larger than .1, consequently training by experience interaction is negligible. As a result of the findings in the first two hypotheses tested, the interaction effect was not considered but was pooled for further analysis.

Hypothesis I

The first hypothesis listed in the study was concerned with the difference between training and competency scores. It was stated as follows:

1. Ho: There is no significant difference to be found between mean competency scores of elementary teachers who receive their media instruction pre-service, in-service, or with no instruction.

The following analysis of variance for competency training is:

Source	df	Sum of Squares	Mean Square	F Test
Total (uncorrected)	105	74886.00		
Population mean and experience (adjusted)	3	66147.00599		
Training adjusted for experience	2	2268.870048	1134.43504	
Error	100	6270.12397	62.70124	$\frac{1134.43504}{62.70124} = 18.09$

From the F-test, one declares rejection of the hypothesis – Ho:

T_1 - T_2 - T_3 where T_1 equals pre-service mean, T_2 equals in-service

mean, and T_3 equals no training mean. Since there is a significant

difference among groups, it is logical that one investigate further

to find specific difference between groups. Table IV indicates

the results of a comparison of groups taken two at a time.

TABLE IV

A COMPARISON BETWEEN MEANS TAKEN TWO AT A TIME
ON COMPETENCY SCORES

Groups	Group Means	Comparison	t - values	Significance
T1	25.70	T1 - T2	3.500495	.01 <P<.05
T2	27.75	T1 - T3	13.256645	P<.001
T3	7.73	T2 - T3	16.75714	P<.001

Consequently, there appears to be a highly significant difference between pre-service training and no training, and in-service training and no training. There is also a significant difference between pre-service training and in-service training.

Hypothesis II

2. Ho: Elementary teachers who obtain their instruction in-service (after some teaching experience) will exhibit a significantly greater frequency of media utilization than will experienced teachers who received their media instruction pre-service and those having no instruction.

For the utilization and training aspect we have the following analysis of variance:

Source	df	Sum of Squares	Mean Square	F test
Total	105	1125771.00		
Population mean and experience (unadjusted)	3	859453.5146		
Training adjusted for experience	2	24245.29117	12122.64559	
Error	100	242072.1943	2420.721943	$\frac{121221.4559}{2420.72943} = 5.0078$

From the value of the F-test we reject the hypothesis. Ho: $T_1 = T_2 = T_3$. To find specific difference between groups, a comparison of groups taken two at a time was made; Table V indicates the results.

TABLE V

A COMPARISON BETWEEN MEANS TAKEN TWO AT A TIME
ON UTILIZATION SCORES

Groups	Group Means	Comparisons	t values	Significance
T1	88.00	T1 - T2	.78184	P > .4
T2	99.72	T1 - T3	2.76216	P > .01
T3	64.64	T2 - T3	3.2364768	P ≥ .01

Consequently no significance is found between pre-service and in-service training but pre-service and in-service are significantly different from no training.

Hypothesis III

3. Ho: Teachers, when grouped by experience of 1-5 years, 6-10 years and 11 plus years experience, will show no significant difference in their media competency.

When considering experience and competency, we have the following analysis of variance:

Source	df	Sum Squares	Mean Square	F Test
Total	105	74686.00		
Population mean and training, (unadjusted)	3	67560.63454		
Experience adjusted for training	2	108.829809	54.414905	less than 1
Error	100	7016.535651	70.16	

Since the F-value is less than one, we accept the hypotheses $E_1 = E_2 = E_3$

where E_1 category of experience (1-5 years), E_2 categories experience is (6-10 years) and E_3 experience (11 years plus).

Hypothesis IV

4. Ho: Teachers, when grouped by experience of 1-5 years, 6-10 years and 11 plus years experience, will show no significant difference in their media utilization.

For experience and utilization, we have the following analysis of variance:

Source	df	Sum of Squares	Mean Squares	F-Test
Total (unadjusted)	105	112577.1000		
Population mean and training, (unadjusted)	3	851210.5267		
Experience for training (adjusted)	2	24054.60721	120207.3036	4.801206
Error	100	250505.8600	2505.65866	

The significance level for the F-test is between .01 and .001; hence we reject the hypothesis E_1 E_2 E_3.

A further investigation of the specific difference between groups is indicated by Table VI.

TABLE VI

A COMPARISON BETWEEN MEANS TAKEN TWO AT A TIME
EXPERIENCE AND UTILIZATION

Groups	Group Means	Comparison	t values	Significance
E1		E1 - E2	.4217	$P > .5$
E2		E1 - E2	2.961965	$P < .01 < .2 > P > .1$
E3		E2 - E3	1.579471	$P < .2 > .1$

Thus the difference between E_1 and E_3 is significant whereas the differences between E_1 - E_2 and E_2 - E_3 are not significant.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

General Review of the Study

In recent years, higher education has recognized the need for
media instruction in teacher education. This investigation was im-
plemented to analyze media instruction of elementary teachers trained
at Oklahoma State University and to check for competencies developed
by the teachers in the program and how frequently they were using the
media in their classroom teaching. Teaching experience was also a
factor studied in this investigation. The purpose of this study
was to gather information that would analyze the present media pro-
gram at Oklahoma State University and be useful in planning educa-
tional media courses for pre-service and in-service teachers.

The author made a search of selected school districts to find
Oklahoma State University graduates who had media training at Oklahoma
State University. Four school districts were selected based on this
qualification. An inventory was made to determine the equipment,
materials, and supporting personnel available to facilitate the
teachers' use of media. This environmental information made it
possible to select schools in the four districts. All teachers in
these schools were asked to fill out a questionnaire developed by
Streeter. It was divided into the following categories:

1. Personal and professional.

2. Competency in media skills and understanding.

3. Frequency of media use.

The scores were obtained by summing the responses on the competency
and utilization sections. The information from the teacher question-
naire was punched on IBM cards and run on the Oklahoma State
University's computers "Doolittle Program". An analysis of variance
was the statistic used with a t-test used to determine significance
between the experience means.

Six hypotheses were presented. They were concerned with the
three levels of training, teachers who received their media train-
ing before teaching in the classroom (pre-service), teachers who
received their media training after some teaching experience (in-
service), and teachers who had no media training. Competence and
utilization of media by the three groups was projected as not being
statistically different. Experience was also considered. The find-
ings of the study are as follows:

1. Training by experience interaction was negligible when
   considered with media competency.

2. Training by experience interaction was negligible when
   considered with media utilization.

3. Media competence of teachers with pre-service training
   appeared to be, statistically, significantly higher than
   teachers with no training.

   Media competence of teachers with in-service training
   appeared to be, statistically, significantly higher than
   teachers with no training.

   Difference in media competence of teachers with in-service
   and pre-service training is questionable.

4. No statistical significance was found in media utilization
    between teachers who receive their training pre-service and
    in-service.

    Teachers who received their training pre-service and in-
    service show a statistically significant higher use of
    media than teachers with no media training.

5. Teachers, when grouped by teaching experience of 1-5 years,
    6-10 years and 11 plus years, show no significant statisti-
    cal difference in their media competence.

6. Teachers, when compared by teaching experience of 1-5 years
    and 6-10 years, show no significant statistical difference
    in media utilization.

    Teachers with teaching experience of 1-5 years show a
    significant statistically greater use of media than
    teachers with 11 plus years experience.

    Teachers, when compared with teaching experience of 6-10
    years and 11 plus years teaching experience, show no
    significant statistical difference in media utilization.

Conclusions

The results in this study lead us to conclude that the media
training program at Oklahoma State University is making its impact
in the public schools of Oklahoma. It was previously noted that
the media competence of teachers in the pre-service and in-service
training program were not significantly different statistically and
both groups were very significantly different statistically when
compared with teachers having no media training.

A comparison of media utilization of the teachers in the pre-
service and in-service group shows no significant statistical
difference but when compared to teachers with no training they
show a highly significant difference. It is apparent that the
training at Oklahoma State University has raised the level of media
competence of the teachers in the program as it obviously should

and has in turn influenced the frequency of the media utilization in the classroom.

When considering what the effects were after teachers received their media training, the results in this study indicate that when teachers receive their media training is not so important. Competence and utilization of teachers taking their media training before teaching and after teaching was about the same. This would indicate that Oklahoma State University should continue both in-service and pre-service training programs.

The area of this study dealing with teachers' teaching experience and their competence of media skills shows that teachers indicated they have about the same competence regardless of their years of teaching experience. This was not the case when looking at the different experience groups and their frequency in utilization of media in the classroom. The teachers in the group of 1-5 years teaching experience demonstrated a significantly higher frequency of media utilization when compared between 11 plus years teaching experience group, and somewhat higher than the 6-10 years experience group. The results indicate that younger teachers are more inclined to use a wider variety of media in classroom instruction. One frequent comment which is not included in the statistical analysis of this study but appeared in the personal comments of the questionnaire indicates that teachers would like the theory correlated with more concrete examples showing how the media can be utilized in the classroom.

Another observation of the data showed that a sufficient number of teachers indicated high competence scores in the questionnaire

but low scores in equipment operation, and utilization. The author

suggests more emphasis be placed on equipment training and instruc-

tion. Perhaps the consideration of a self-instruction program of the

type already in operation in several institutions of higher education

would raise teachers' level of competence in equipment operation and

utilization.

Recommendations

In any research, one is confronted with a number of aspects

that are not specifically considered, but could be recommended as a

guide in future research to broaden or strengthen the scope of the

study. The following are listed with this in mind.

1. In this investigation, competence and frequency of media

    utilization were indicated on a questionnaire by the

    teachers. In future studies a more accurate record could

    result from observing and recording the competencies and

    frequency of media utilization over a longer given period

    of time. This would of course involve a longitudinal

    investigation.

2. The author's investigation was with elementary teachers.

    It could, in the future, include the secondary teachers.

    However, the different subjects taught at this level

    will require determining the unique media skills needed

    for each subject. Torkelson (23) suggests one would need

    to determine the specific nature of the learning behaviors

that each subject requires and which specific media could be applied.

3. Very little information is found to account for the variation in the frequency that media is used by competent teachers who have the necessary equipment at their disposal.

4. This investigation was concerned with only a few of the many variables that could possibly have been studied. Researchers are saying that studies should consider a number of the factors that could have an effect on the outcome. Variables such as a specific list of competencies, sex attitudes, pupil control, and mechanical ability are but a few of the many that could be investigated in a study such as this.

5. Since some of the in-service programs were conducted off campus, there was not a great difference in competence developed by the two training programs nor did they affect the frequency of using difficult media. A study reflecting the effects of the campus environment vs. the public school environment might be worth considering.

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APPENDIX A

LETTERS OF INTRODUCTION

May 27, 1969

Dear Sir:

You are very much aware, I am sure, of the importance of teacher education in the use of media at pre- and in-service levels. At Oklahoma State University we are now in the process of analyzing and evaluating our instructional program. We are undertaking this study to provide essential information. I am writing to you for your assistance in this effort.

Essentially we need two things. One is to have the appropriate building principal (or coordinator) to fill out an equipment and facilities inventory form and to have elementary teachers who have had their media instruction from OSU to fill out a media use form. We would like a similar number that have no media instruction to fill out the same forms also. These forms are enclosed. Mr. Kenneth Brookens is conducting the study as a part of his doctoral dissertation.

Your cooperation in this study would be very much appreciated.

Respectfully,

Kenneth L. Brookens
Researcher

Dr. Kenneth Wiggins
Research Committee Chairman

Dr. Gene Post
Research Committee Consultant

May 27, 1969

Dear Colleague:

As you probably know--vast sums of money are being spent by school districts and the Federal government for the purchase of audiovisual equipment and materials. However, it is also apparent that only limited use is being made of this equipment and materials by teachers in the classroom.

One reason given for this limited use is that teachers lack the knowledge and skill in the use of audiovisual equipment and materials. It is for this purpose that Oklahoma State is currently analyzing and evaluating their Instructional Media Program. A quick-answer type questionnaire is being sent to the classroom teachers of selected schools in Oklahoma. This is part of an effort to help identify the knowledge and skills in the use of audiovisual materials that should be included in pre-service and in-service educational programs.

Your school district is participating in this study and attached is a copy of the letter sent to your superintendent. Information obtained in this study will also be useful in evaluating your school system's audiovisual program.

Will you, as a classroom teacher, help attain the results of this study by marking the appropriate responses, seal the questionnaire in the attached stamped envelope and deposit it in the mail at your earliest convenience.

Thank you for your assistance in this project.

Kenneth L. Brookens   Dr. Kenneth Wiggins   Dr. Gene Post
Researcher   Research Committee   Research Committee
                            Chairman   Consultant

APPENDIX B

INSTRUMENT

INSTRUCTIONAL MEDIA SURVEY

PART ONE
BACKGROUND INFORMATION

Please give your response by checking the appropriate space or by writing your response on the appropriate line.

___Male ___Female   Years of teaching experience _____

Grade now teaching _____   Subject teaching _____

Can your classroom be darkened? _____ Yes   _____ No

Does your classroom have a wall socket? _____ Yes   _____ No

Does your classroom have a permanent screen for showing projected materials? _____ Yes   _____ No

    If not, is a portable screen available? _____ Yes   _____ No

What training have you had in either the preparation or use of audiovisual materials such as films, filmstrips, slides, tape recorders, television, etc.?
    (Check as many categories as are applicable)

    _____ As a topic or unit in a methods course in college

    _____ College course(s) devoted to audiovisual materials -- at Oklahoma State University Yes ( ) No ( )

    _____ If more than one, how many courses? _____

    _____ In-service training -- at Oklahoma State University Yes ( ) No ( )

    _____ Informal training (self taught)

    _____ No training

In terms of your own experiences, what kinds of conditions or situtations have most discouraged you in the use of audiovisual materials? (Name one or two of the most prominent factors.)

PART TWO
KNOWLEDGE AND SKILLS

        Listed below are specific items of information and skill involved
in the use of audiovisual materials. Will you please indicate by
circling the item number of those elements of knowledge or skill which
you know or can perform successfully.

KNOWLEDGE AND/OR SKILL TO:

    1. Make and use such chalkboard aids as templates, disclosure
        devices, and opaque enlargements.

    2. Do cartooning and simple sketching.

    3. Mount graphic and pictorial material using rubber cement or
        dry mount tissue.

    4. Prepare materials for use with at least one type of "teaching
        board" (flannel, felt, magnetic, or hook and loop).

    5. Prepare transparencies (single and overlay) using a marking
        pencil or felt pen directly on acetate.

    6. Prepare transparencies using a heat process (Thermo-fax) or
        a diazo (ammonia) process.

    7. Prepare tape recordings that require only one voice.

    8. Prepare tape recordings that require dubbing from records
        or other tapes.

    9. Prepare photographic slides.

    10. Prepare tape-slide instructional presentations.

    11. Apply laminating film over mounted or unmounted flat materials.

    12. Plan and prepare an instructional T.V. or radio program.

    13. Plan and prepare an instructional film.

    14. Construct models, or build dioramas, or work with paper
        mache (one or more).

    15. Produce programed instruction materials.

    16. Specify the learning task in behavioral terms.

    17. Evaluate the effectiveness of the use of materials in teaching.

18. Recall results of research studies which have implication for using audiovisual materials in teaching.

19. Acquire audiovisual materials from sources available in the local school district.

20. Acquire audiovisual materials from sources available in the county or intermediate school district.

21. Acquire audiovisual materials from sources available at the state level (universities, state dept., dept. of health, etc.).

22. Acquire materials from one or more sources of free materials.

23. Select audiovisual materials on the basis of principles derived from learning and communication theories.

24. Recall unique characteristics of various types of audiovisual equipment.

25. Explain the various roles media plays in the instructional process (record instruction, extend the teacher, enhance learning).

26. Design and arrange the learning space to most effectively use audiovisual materials.

27. Incorporate audiovisual materials as a part of the normal flow of classroom instruction.

28. Overcome audiovisual limitations through appropriate methodology and editing or restructuring the materials.

29. Adapt audiovisual techniques to various sized groups of learners.

30. Introduce and follow-up audiovisual presentations.

31. Work effectively with a television teacher's presentation.

32. Prepare learning space under varying conditions for optimum use of projected materials.

33. Perform simple maintenance techniques, such as replacing projection lamps.

34. Store and maintain flat pictures, transparencies, etc.

35. Store and maintain films, filmstrips and tape recordings.

KNOWLEDGE AND SKILL TO SET UP AND OPERATE:

36. 16 mm motion picture projector

37. Cartridge loading 8 mm projector

38. Filmstrip projector

39. Automatic slide projector

40. Overhead projector

41. Opaque projector

42. Record player

43. Tape recorder

44. T.V. receiver

45. Photocopier

46. Still camera

47. Motion picture camera

PART THREE

USE OF AUDIOVISUAL MATERIALS

On this sheet are listed a few of the better known audiovisual materials. You have probably heard about most of these even if you haven't used some of them.

Beside each of the items listed below is a twenty point scale. Assuming there are 20 teaching days in a month, circle the number on the scale that approximates the number of days per month you use the item in your teaching.

Examples: If you use a radio in your teaching once a month, circle the number 1. If you use it once a week circle 4. If you use an item, but use it less than once a month put an X between 0 and 1.

16mm motion picture...............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
8 mm motion pictures.............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Filmstrips.......................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Disc recordings (records).......	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Tape recorder...................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Radio...........................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Television (commercial).........	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Television (educational, Cl. Rm. 10, IMPATI)..............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Teaching board (flannel, felt, magnetic, etc.)..............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20

Models and objects................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Maps and globes..................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Charts and graphs................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Programed instruction............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Overhead projector...............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Opaque projector.................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Language laboratory..............	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Micro-projector..................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
Chalkboard.......................	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20

OTHER NON-BOOK MATERIALS NOT LISTED

_____	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20
_____	0	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20

APPENDIX C

BUILDING INVENTORY

SUMMARIES OF ELEMENTARY BUILDING INVENTORIES

Equipment	School Districts			
	#1	#2	#3	#4
	5 bldgs	2 bldgs	2 bldgs	5 bldgs
16 mm motion picture projector	7	2	3	5
cartridge loading 8mm projector	1	1	0	1
filmstrip projector	8	2	2	2
automatic slide projector	1	1	2	1
overhead projector	6	9	2	7
opaque projector	3	1	1	1
record player	6	8	3	6
tape recorder	5	3	2	7
T.V. receiver	8	every room	color every room	14
photocopier	2	2	2	2
still camera	1	2	0	1
motion picture camera	1	2	1	2
radio	5	4+	4	3
flanned, felt, or magnetic board	6+	8+	5	11

SUMMARY OF ELEMENTARY BUILDING INVENTORIES

Equipment	School Districts			
	#1	#2	#3	#5
	5 bldgs	2 bldgs	2 bldgs	5 bldgs
paper cutter	9	5	4	9
dry mount press	1	1	1	2
primary typewriter	1	1	1	1
Full time district A-V coordinator	1	1	1	1
Building A-V coordinator - No released time	1	1	1	1
Part-time	0	0	0	0
Full-time	0	0	0	0
Person in building to help prepare media materials	4	1	1	1
Equipment can be delivered and set up in classroom	yes	yes	yes	yes
Audiovisual person available to help teachers select teaching materials	yes	yes	yes	yes
Catalogs or audiovisual materials available to teachers	yes	yes	yes	yes

SUMMARY OF ELEMENTARY BUILDING INVENTORIES

Equipment	School Districts			
	#1	#2	#3	#4
	5 bldgs	2 bldgs	2 bldgs	5 bldgs
Equipment centrally housed	yes	yes	yes	yes
Building instructional materials center	yes	yes	yes	yes
Hours of in-service training in A-V annually	1-3	workshop	workshop	workshop
Subscribe to ETV	yes	yes	yes	yes

VITA

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Doctor of Education

Thesis: AN EXPLORATORY STUDY OF MEDIA INSTRUCTION OF PRE-SERVICE AND
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