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AN EXPLORATORY STUDY OF MEDIA COMPETENCIES AS
PERCEIVED BY 1973 TEACHER GRADUATES FROM THE
UNIVERSITY OF OKLAHOMA AND OTHER SELECTED TEACHER
EDUCATION INSTITUTIONS IN OKLAHOMA.

The University of Oklahoma, Ed.D., 1974
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THE UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

AN EXPLORATORY STUDY OF MEDIA COMPETENCIES AS PERCEIVED
BY 1973 TEACHER GRADUATES FROM THE UNIVERSITY OF
OKLAHOMA AND OTHER SELECTED TEACHER EDUCATION
INSTITUTIONS IN OKLAHOMA

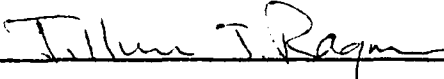
A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
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DOCTOR OF EDUCATION

BY
MARGIE DOLLAR FORD
Norman, Oklahoma
1974

AN EXPLORATORY STUDY OF MEDIA COMPETENCIES AS PERCEIVED
BY 1973 TEACHER GRADUATES FROM THE UNIVERSITY OF
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INSTITUTIONS IN OKLAHOMA

APPROVED BY



DISSERTATION COMMITTEE

TO: PAUL, MY FAVORITE AND ONLY
SON

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AN EXPLORATORY STUDY OF MEDIA COMPETENCIES AS PERCEIVED
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CHAPTER I

THE PROBLEM

Introduction and Rationale

Over the past several years, numerous organizations and professional educators have devoted energies to the exploration of methods of providing prospective teachers with competencies in the utilization of instructional technology. The National Council for Accreditation of Teacher Education (NCATE) in 1970 adopted standards which designated the responsibility of teacher education institutions to develop skills and understandings of prospective teachers relative to instructional technology.

Instructional technology encompasses a broader scope than the use and operation of a particular medium or device. The President's Commission on Instructional Technology adopted the following definition:

"...instructional technology goes beyond any particular medium or device. In this sense, instructional technology is more than the sum of its parts. It is a systematic way of designing, carrying out, and evaluating the total

process of learning and teaching in terms of specific objectives, based upon research in human learning and communication, and employing a combination of human and non-human resources to bring about more effective instruction..."¹

In 1970, the Task Force on Instructional Technology of the Associated Organizations for Teacher Education (ATOE) ascribed to the Commission's definition and "agrees that effective application of instructional technology to teacher education demands a science of learning and of teaching which systematically accounts for the contributions or failures in solving educational problems."² The report further indicates that teacher education programs will require significant changes if the new teacher is to be successful in dealing with individualization and greater freedom for the learner in educational settings that no longer follow traditional patterns.

"Teacher preparation requires a setting, the opportunity, and determination to search for combination of mediated experiences which work best for given circumstances as learners are demanding more relevance in their learning activities, so must teacher education institutions provide comparable experiences for teacher trainees."³

Using such a rationale as a basis, the NCATE specifications for the development of media competencies of

¹Sidney G. Tickton, ed., To Improve Learning, Vol. I (New York: R. R. Bowker Co., 1970), p. 5.

²Gerald M. Torkelson, "Instructional Technology in Teacher Education," Audiovisual Instruction, XVI (March, 1971), p. 48.

³Ibid., p. 54.

prospective teachers is defensible. The Recommended Standards for Teacher Education specifies in the preamble that preparatory teacher education programs should include the use of instructional media and materials in two ways:⁴

- (1) how to devise and use modern technology in teaching and
- (2) the utilization of modern technology by faculty in the teaching of students.

It then becomes the task of the teacher education institutions to develop programs which meet the recommendations of NCATE and those proposed by the Task Force on Instructional Technology of ATOE. One of the first tasks in developing such a program is the specification of media competencies which are needed by prospective teachers. The literature contains numerous research reports which have attempted to identify those media competencies which should be emphasized in teacher education programs. Perhaps the most comprehensive and most recent is the study edited by Meierhenry, which is an attempt to systematically identify needed media competencies of teachers.⁵ Teacher education

⁴Recommended Standards for Teacher Education: The Accreditation of Basic and Advanced Preparation Programs for Professional School Personnel (Washington, D. C.: The American Association for Colleges for Teacher Education, 1971), p. 11.

⁵W. C. Meierhenry, ed., Media Competencies for Teachers: A Project to Identify Competencies Needed by Teachers in the Use of the Newer Media and Various Approaches to Achieving Them, National Defense Education Act, Title VII, Contract No. 5-0730-2-12-6 (Lincoln: University of Nebraska, 1966).

institutions concerned with the development of media competencies could use Meierhenry's list which is flexible and can be adapted to meet the changing influences in education and to satisfy the institution's specific needs and requirements.

Methods for developing specified media competencies vary from institution to institution. Generally speaking there are four basic approaches or methods:⁶ (1) the formal media course, (2) the laboratory-project approach, (3) the integrated methods-media course and (4) the completely integrated approach in which media permeates all the professional education courses. Previous research efforts have shown that pre-service media preparation causes teachers to have a more favorable attitude toward media and to use it more effectively (Benda, 1956,⁷ Oliver, 1962,⁸ Streeter, 1967,⁹

⁶"The Okoboji Report", Audiovisual Instruction, IV (January, 1959), p. 4.

⁷Harold W. Benda, "A Plan for the Improvement of the Pre-Service Course in Audio-Visual Education for the State Teachers Colleges of New Jersey" (unpublished doctoral dissertation, New York University, 1956), Dissertation Abstracts, Vol. 18, p. 1727.

⁸G. E. Oliver, A Study of Pre-Service Teacher Education in Use of Media of Mass Communication for Classroom Instruction, National Defense Education Act, Title VII, Project No. 130 (University of Georgia, 1962).

⁹Charles E. Streeter, "A Study of Relationships Among Selected Factors Affecting Media Use by Classroom Teachers Within Selected Schools" (unpublished doctoral dissertation, Michigan State University, 1969), pp. 67-75, 81-90.

and King, 1968¹⁰). Torkelson's research is in agreement with these studies, but he concluded that no one particular approach for developing media competencies is superior to another.¹¹ Teacher education institutions adopt a method or approach which will fit the needs of the institution and meet the requirements for teacher certification as specified by the state departments of education.

The Oklahoma State Department of Education, the Division of Teacher Education and Certification places the responsibility for determining media competencies and the method for developing these competencies with the teacher education institutions in Oklahoma. The minimum essentials for each of the different teacher education programs are stated in the Teacher Education, Certification and Assignment Handbook. The requirement relating to proficiency in educational media which became effective September, 1971, is stated for each program as follows: "...Each institution

¹⁰ Richard L. King, "A Study of Selected Factors Related to Variability in the Use of Certain Types of Instructional Media Among Teachers" (unpublished doctoral dissertation, University of Missouri at Columbia, 1968), Dissertation Abstracts, Vol. 28, p. 3528.

¹¹ Gerald M. Torkelson, An Experimental Study of Patterns for Improving the Preparation of Pre-Service Teachers in the Use of Audio-Visual Materials and of Effect on Pupils, National Defense Education Act, Title VII, Project No. 079 (Pennsylvania State University, 1965), p. 64.

educating teachers adopt a program requiring proficiency in educational media appropriate for the subject taught."¹²

The Oklahoma State Department of Education (OSDE) does not offer a specific definition for the term "proficiency" in educational media, nor does it specify methods for achieving proficiency. Such decisions are left to the discretion of the teacher education institutions. Each of the State's teacher education institutions was asked to specify how they would comply with these media proficiency requirements. From these statements, it was concluded that teachers enrolled in Oklahoma teacher education institutions can receive media proficiency by one of two methods: (1) completion of a formal education media course for course credit or (2) participate in an integrated curriculum methods-media course.¹³

Previous research has shown that self-instructional methods, either in a formal course structure or as a part of an integrated methods-media course, can provide teachers adequate preparation in educational media (Torkelson,¹⁴

¹²Oklahoma State Department of Education, Teacher Education, Certification and Assignment Handbook (Oklahoma City: Oklahoma State Department of Education, March, 1971), pp. 7, 10, 14, 25, 35, 46.

¹³Letters, Files of Division of Teacher Education, Oklahoma State Department of Education.

¹⁴Torkelson, An Experimental Study, p. 67.

Curl,¹⁵ and Paschall,¹⁶). However, there appears to be very few self-instructional courses for developing all areas of media competencies. Most of the self-instructional programs are a part of a larger training program and deal with only one or two areas of competency development such as equipment operation or production. The University of Oklahoma has adopted a self-instructional program for helping teachers to develop media competencies in several areas.

The basic educational media course offered by the University of Oklahoma utilizes an automated educational media program consisting of filmstrips and audio tapes in a self-paced instructional laboratory to provide the student with basic information and knowledges about educational media. The course also requires that students attend a self-instructional laboratory to acquire proficiency in the operation of audiovisual equipment. The course is required for teacher education majors. However, students in other programs working toward certification can receive "proficiency" as a part of the curriculum methods course. Students in either situation must pass an examination over information

¹⁵David H. Curl, "An Exploratory Study of a Self-Instructional Method for Teaching Equipment Operation" (unpublished doctoral dissertation, Indiana University, 1961), p. 107.

¹⁶Jack W. Paschall, "The Comparative Effectiveness of Two Instructional Systems for Teaching the Course 'Audiovisual Materials in Teaching'" (unpublished doctoral dissertation, University of Oklahoma, 1970), p. 88.

from the automated media course as well as demonstrate by examination competencies in the operation of audiovisual equipment.

It can be assumed that students at the University of Oklahoma who had the formal educational media course utilizing the self-instructional programs acquired certain knowledges which are necessary in achieving a high level of media competency. Recent research reports conducted at the University of Oklahoma's College of Education by Paschall,¹⁷ Jordan,¹⁸ and Tipling,¹⁹ have yielded some evidence that the automated educational media course provides a high degree of media competency development among prospective teachers.

Other teacher education institutions in Oklahoma which were included in this study require "proficiency" in educational media either as part of a curriculum methods course or by a formal course which is not totally self instructional. Generally speaking, formal educational media courses in the nine other teacher education institutions included in this study employ the traditional approach to teaching media

¹⁷ Ibid, pp. 86-94.

¹⁸ Dan Jordan, "The Effects of Integrating Discussion Sessions with a Self-Instructional Course in Audiovisual Methods" (unpublished doctoral dissertation, University of Oklahoma, 1972), pp. 91-102.

¹⁹ Roger N. Tipling, "An Evaluation of the Effects of a Student Guide and Automated Course in Comparison to a Traditional Approach in Teaching the Course 'Audiovisual Materials in Teaching'" (unpublished doctoral dissertation, University of Oklahoma, 1973), pp. 84-94.

by utilizing a laboratory-project method as part of the course. It is anticipated that students who have formal media courses at the University of Oklahoma and other State teacher education institutions may perceive themselves as being more competent in educational media than those who have not had formal media courses. There tends to be support from the studies of Gramlich,²⁰ Gibbony,²¹ and Kennard,²² that there is a relationship between the level of media competencies possessed by classroom teachers and the training they received for these competencies. Furthermore, studies by Torkelson,²³ Curl,²⁴ and Stiehl,²⁵ support the idea that self-instructional programs will satisfactorily

²⁰ Jay Gramlich, "The Status of Audio-Visual Programs in Selected Four-Year Institutions of High Learning as They Relate to the Preparation of Pre-Service Teachers" (unpublished doctoral dissertation, University of Oklahoma, 1954), p.47.

²¹ Hazel Lee Gibbony, "The Instructional Materials Center in Teacher Education" (unpublished doctoral dissertation, Ohio State University, 1957), Dissertation Abstracts, Vol. 18, p. 2070.

²² Albert L. Kennard, "Media Competencies of Teachers in Relation to the Quality of the Educational Media Programs in Teacher Training Institutions: A Study of Selected Louisiana Public Institutions and Graduates" (unpublished doctoral dissertation, University of Oklahoma, 1973), pp. 88-93.

²³ Torkelson, An Experimental Study, p. 97.

²⁴ Curl, "An Exploratory Study," p. 84.

²⁵ Ruth E. Stiehl, "Self-Instruction in Graphic Media Production: A Comparison of the Relative Effectiveness of Learning Graphics Production Skills by a Self-Instructional System as Contrasted with Group Instruction" (unpublished doctoral dissertation, University of Idaho, 1972), Dissertation Abstracts, Vol. 33, p. 2247.

prepare teachers to use educational media in their teaching. Based on the premise that there is a relationship between media training, kind of media training and media competency, it is appropriate to investigate Oklahoma teacher graduates' perceptions about their media competencies and their training for these competencies. Additionally, it would seem important to investigate those perceptions with specific reference to the training, i.e., whether or not the teacher graduate had a course in educational media and whether or not the course was self-instructional.

Using the above rationale as a basis, this exploratory study was concerned with a problem which was twofold in nature. Each of these aspects is considered in the problem statement.

Statement of the Problem

1. What level of media competency do Oklahoma teachers who graduated in the spring or summer of 1973 perceive to possess?

2. What level of training for media competency do these same teacher graduates perceive to have acquired during their teacher education program?

More specifically, to meet the purposes outlined in this study and to further delineate the above stated problem, the following questions were investigated:

1. Do teacher graduates who have had a formal media course perceive themselves as possessing a higher level of media competency than teacher graduates who have not had a formal course in educational media?

2. Is there any difference in the level of training perceived by teacher graduates who have had a media course and those who have not taken a media course?

Because of the uniqueness of the University of Oklahoma's automated educational media course, it was also necessary to investigate these additional questions:

3. Do 1973 University of Oklahoma teacher graduates who have had the automated educational media course perceive themselves as possessing a higher level of media competency than graduates from nine other State teacher training institutions which do not use an automated self-instructional program as a part of the educational media course?

4. Is there any difference in the level of training perceived by teacher graduates from the University of Oklahoma and teacher graduates from the nine other teacher education institutions?

Purpose of the Study

An exploratory field study such as this should produce information which could be valuable in a number of ways. The study gathered data which could be useful in evaluating present pre-service teacher education programs. The data gathered should provide teacher education institutions with insight about how teacher graduates perceived their pre-service training in educational media indicating the weaknesses and strengths of media competency preparation.

The data should also yield some evidence which could be useful for planning in-service media programs by colleges and school systems. Finally, the study should be comprehensive enough to make generalizations about training for media competencies in Oklahoma teacher education institutions and to make specific recommendations for additional research.

Hypotheses

The statement of the problem based on the rationale and purpose of the study generated the following hypotheses:

- Ho₁ There are no statistically significant differences between the level of media competency which teacher graduates perceive to possess and the level of training which they perceived to have received from their teacher education programs in Oklahoma's colleges and universities.
- Ho₂ There are no statistically significant differences between the level of media competencies perceived by teacher graduates who had a formal media course as part of their teacher education

program and the media competencies perceived by teacher graduates who did not have a formal media course as part of their teacher education program.

- Ho₃ There are no statistically significant differences between the perceived levels of training for media competencies of teacher graduates who had a formal media course as part of their teacher education program and the perceived levels of training for media competencies of teacher graduates who did not have a formal media course as part of their teacher education program.
- Ho₄ There are no statistically significant differences between the levels of media competencies perceived by teacher graduates from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the levels of media competencies perceived by teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program.
- Ho₅ There are no statistically significant differences between the levels of training for media competencies perceived by teacher graduates from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the levels of training for media competencies perceived by teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program.

Definition of Terms

The use of the term educational media in this study pertains to all materials, equipment, techniques and services commonly described as "audiovisual" and all new media and methods such as programmed instruction and use of television. The terms media, audiovisual media, instructional

media, educational media, as well as instructional technology, are used interchangeably to facilitate the survey of the related literature.

Teacher graduates refer to those graduates from Oklahoma teacher education institutions who have completed the required teacher education program for teacher certification, graduated in the spring or summer of 1973, and who began teaching in Oklahoma Public Schools in the fall of 1973.

Teacher education institutions for the purpose of this study will mean those four-year Oklahoma State supported teacher education institutions which have been accredited by the National Council for Accreditation of Teacher Education who offer "proficiency" in educational media as a part of a curriculum or methods course and by a formal media course which does not include the automated educational media program.

Other institutions refers to the nine teacher education institutions other than the University of Oklahoma.

University of Oklahoma teacher graduates are those 1973 graduates who were in their first year of teaching in Oklahoma Public Schools and who graduated from the University of Oklahoma.

Media course refers to a planned semester course in educational media which is self-contained and upon completion of the course requirements, the student receives

credit hour(s) and a proficiency rating in educational media.

Automated educational media course and/or program refers specifically to the educational media course offered by the University of Oklahoma and generally refers to a self-instructional laboratory where instruction is self-paced and the student moves through the course using filmstrips and audio tapes to acquire knowledges and information about certain areas of educational media.

Level of media competency (one of the dependent variables measured in the present study) refers to the derived score of the teacher graduates from a given institution(s) on the Media Competency Survey. Teacher graduates rated themselves on a scale for each competency, and the ratings were summed over for each teacher.

Level of training for media competency (the other dependent variable measured in the study) is the derived score for each institution(s) on the Training for Media Competency Survey which was completed by each teacher graduate. Teacher graduates completed the survey using a two point scale and the numerical ratings were summed to provide a rating score for each teacher graduate from that institution.

Limitations and Assumptions

The results of this study should be interpreted in light of the following limitations:

1. This study included only selected 1973 teacher graduates from the University of Oklahoma and other selected state-supported teacher education institutions in Oklahoma which have been accredited by NCATE but which do not include an automated self-instructional educational media program as a part or whole of their formal media course. The teacher graduates had begun in-service teaching in Oklahoma Public schools in the fall of 1973.

2. The results of the study are generalizable only to the extent that these institutions and these teacher graduates are representative of other institutions and teacher graduates possessing similar characteristics.

3. The ex-post facto characteristics of a field study such as this, eliminate the researcher's ability to manipulate variables, provide no systematic method for controlling variables and lessen the ability to make statements of casual relations.

The assumptions made in this study were as follows:

1. It was assumed that the teacher graduates who were randomly selected from the category of teacher education institutions were in fact representative of the entire population of teacher graduates graduating at the same time from the same institution.

2. It was assumed that the data collecting instrument used in this study solicited a true response from each teacher graduate.

Type of Research

This study can be described as an exploratory field study. Kerlinger describes a field study as "ex-post facto scientific inquiries aimed at discovering the relations and interactions among sociological, psychological and educational variables in real social structures."²⁶ Kerlinger further states that in a field study the investigator looks first at a social or institutional situation and then studies the relation among the attitudes, values, perceptions, and the behaviors of individuals and groups in that particular situation.²⁷

Field studies, such as this study, utilize the "perceived" aspect of some phenomenon. It is not the task of this study to describe the various levels of perception, but to merely point out that in an exploratory field study, valuable insights about relations of variables can be acquired through perceived incidents. Kilpatrick and Cantril note that "each of us lives and operates in the world and through self as perceived."²⁸ Yinger²⁹ points out that the

²⁶Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1964), p. 387.

²⁷Ibid.

²⁸F. P. Kilpatrick and Hadley Cantril, "Self-Anchoring Scaling: A Measure of the Individual's Unique Worlds" Journal of Individual Psychology, XVI (1960), p. 158.

²⁹J. Milton Yinger, Toward a Field Theory of Behavior (New York: McGraw-Hill, 1965) p. 47.

perceptual field or perceived incident is reality to the person doing the perceiving and it may not be in accord with the "external observer's perception", but this fact alone determines his behavior toward the task. Zalkind and Cortello³⁰ and earlier Johnson³¹ reviewed research studies which indicated that knowledge of oneself is reflected in one's judgment of others as well as situations. It would appear that there would be a distorting influence in perceptual studies, but Asch³² indicated that when a subject has some objective knowledge of a situation, his perceptions are based on this prior knowledge. He pointed out that to "perceive is to order in particular ways." Kilpatrick and Cantril³⁴ were in agreement when they reported that what is perceived is inseparable from the perceiver and to understand human behavior is to take into account the unique reality (perception) of the individual. The investigation of a teacher's first-person point of view of competencies can enhance the understanding of this particular facet of formal education. Such investigations can be of value in

³⁰Sheldon S. Zalkind and W. Cortello, "Perception: Some Recent Research and Implications for Administration," Administrative Science Quarterly, VII (June, 1962), pp. 219-235.

³¹Donald M. Johnson, "A Systematic Treatment of Judgment," Psychological Bulletin, XLII (April, 1945), pp. 193-224.

³²Solmon E. Asch, "Perceptual Organization in Learning," Viewpoints, XLVII (July, 1971), pp. 5-15.

³³Ibid., p. 15.

³⁴Kilpatrick and Cantril, "Self-Anchoring Scaling."

an exploratory field study which attempts to seek objective information rather than predict causal relations. The general purposes of an exploratory field study which utilizes the first-person point of view such as this study are as follows: (1) to discover significant variables in the field situation, (2) to discover relationships among variables and (3) to lay a foundation for later, more systematic and rigorous testing of hypotheses.³⁵

This study was concerned with the level of media competency perceived by teacher graduates and the level of training for media competency by teacher education institutions as perceived by teacher graduates. To determine the level in each instance necessitated the selection of an instrument which would be completed by the selected teacher graduates from the teacher education institutions. The instruments selected for use in this study were developed and tested by Kennard³⁶ for his doctoral study. The instruments are discussed in Chapter III.

The collection of the data for the study involved the following procedures: (1) identification of the population (2) random selection of teacher graduates from the University of Oklahoma and other teacher education institutions in Oklahoma and (3) completion of the Media Competency

³⁵Kerlinger, Foundations, P. 388.

³⁶Ibid., pp. 109-111.

Survey Questionnaire by each of the selected teacher graduates.

The data collection procedures and the analysis of the data are discussed in a later section of this report.

Organization of the Study

The report of this study is divided into five chapters. Chapter I is concerned with the rationale and purposes of the study; a statement of the problem including the hypotheses to be tested; the definition of terms; limitations and assumptions; and an explanation of the research effort.

Chapter II consists of a survey of the related literature with concern for three general areas: (1) media competencies of teachers; (2) methods and approaches for developing media competencies in teacher education programs and (3) automated self-instruction in media courses.

Chapter III describes the methodology in collecting and analyzing the data. More specifically, the chapter includes the plan for the over-all study; selection of the population and sample; a description of the data collection instruments and the procedures for collecting the data; and the statistical analysis procedures.

Chapter IV contains detailed results of the analysis of the data and Chapter V presents the summary, conclusions and implications for further research.

CHAPTER II

SURVEY OF THE RELATED LITERATURE

The problem of this study was concerned with three general areas: (1) media competencies of teachers, (2) methods of developing media competencies and (3) automated self-instructional programs for developing media competencies. The survey of the literature presented in this chapter was treated individually for each area. The chapter was concluded with a brief summary of the literature surveyed.

Media Competencies of Teachers

The review of research reports on recommended media competencies revealed that they tend to fluctuate with changes in instructional methods and materials. In the late 1950's and early 1960's there were numerous attempts to identify those media competencies which should be developed in pre-service and in-service teacher education programs.

One of the earlier formal statements dealing with the subject of media competencies of prospective teachers was published by the American Council on Education in 1947. The authors suggested that the teacher should know something about the "nature of aids" and "the principle of good teaching that affects the selection and use of these

materials."¹ Also in 1947, the California State Department of Education published a list of media competencies which had been compiled by teachers, administrators and supervisors as those media competencies needed by classroom teachers.²

The Pascoe Study made important contributions in establishing the priority of media competencies in the area of selection and utilization of media.³ Pascoe's findings were reported at the 1958 Okoboji Leadership Conference where an attempt was made to develop a list of audiovisual competencies which should be taught in teacher education programs.⁴

Zimmerman⁵ in his evaluation of pre-service audiovisual experiences of teachers attempted to identify the

¹Elizabeth Goudy Noel and J. Paul Leonard, Foundations for Teacher Education in Audio-Visual Education (Washington, D. C.: American Council on Education, 1947), p. 123.

²California State Department of Education, "Developing Standards for Teacher Competency in Audio-Visual Education," California Schools, XVIII (1947), pp. 3-6.

³"The Pascoe Report," Audiovisual Instruction, IV (January, 1959), pp. 6-7.

⁴William H. Allen, ed., A Summary of the Lake Okoboji Audio-Visual Leadership Conference Held at the Iowa Lakeside Laboratory, Milford, Iowa, During the Years 1955-1959 (Washington, D. C.: Department of Audiovisual Instruction, 1960).

⁵Harry P. Zimmerman, "An Evaluation of Pre-Service Audio-Visual Experiences in Selected Oklahoma Teacher Education Institutions Based on Reactions of Teachers and Supervisors" (unpublished doctoral dissertation, University of Oklahoma, 1958), p. 11.

audiovisual knowledges, understandings and competencies needed by beginning teachers.

Fulton and White reported a list of audiovisual competencies developed by the Teacher Education Committee of the Department of Audiovisual Instruction. This list was incorporated in the Standards and Guide used by the National Council for Accreditation of Teacher Education (NCATE). The proposed competencies were listed under four headings: (1) proficiency in the selection and evaluation of media materials, (2) proficiency in the utilization of appropriate instructional materials, (3) proficiency in the production of simple instructional materials and (4) proficiency in the preparation and use of physical facilities.⁶

Oliver solicited the opinions of supervisors of practice teachers regarding the importance of certain media competencies.⁷ Later, Torkelson compiled a rank-ordered list of media competencies which were considered helpful in teaching.⁸

Meierhenry⁹ with the assistance of six nationally known educators in the media field produced a comprehensive

⁶W. R. Fulton and Frederick A. White, "What Constitutes Teacher Competence in Audio-Visual Communication," Phi Delta Kappan, XL (January, 1959), p. 159.

⁷Oliver, "Pre-Service Teacher Education," p. 107.

⁸Torkelson, An Experimental Study, pp. 11-17.

⁹Meierhenry, Media Competency for Teachers, pp. 27-28.

volume, Media Competencies for Teachers. Of particular importance were two papers by Kemp¹⁰ and Torkelson¹¹ which constitute an empirical base for the investigation of media competencies of teachers. Both authors formulated behaviorally stated media competencies which were substantiated with historical and theoretical evidence.

Seigal,¹² Streeter,¹³ McMahon,¹⁴ Brookens,¹⁵ and Haselwood¹⁶ identified media competencies needed by

¹⁰Jerrold E. Kemp, "Identification of Pre-Service and In-Service Teacher Competencies in the Area of Audiovisual Production Techniques" in Meierhenry, Media Competencies for Teachers, pp.127-166.

¹¹Gerald M. Torkelson, "Competencies Needed by Teachers in the Use of New Media and Various Approaches to Achieving Them" in Meierhenry, Media Competencies for Teachers, pp. 169-211.

¹²Ernest Seigal, "The Competencies in the Use of Audio-Visual Instructional Materials Deemed Requisite in the Training of Teachers in the Public Elementary Schools of New Jersey with Specific Reference to the Elementary Training of the State Colleges of New Jersey" (unpublished doctoral dissertation, Michigan State University, 1967), p. 137.

¹³Streeter, "A Study of Relationships."

¹⁴Marie McMahon, "A Study of the Feasibility of a System of Pre-Service Teacher Education in Media" (unpublished doctoral dissertation, Michigan State University, 1968).

¹⁵Kenneth L. Brookens, "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" (unpublished doctoral dissertation, Oklahoma State University, 1970), p. 174.

¹⁶Eldon L. Haselwood, "An Analysis of the Media Competencies of College of Education Student Teachers at the University of Nebraska at Omaha" (unpublished doctoral dissertation, University of Nebraska at Lincoln, 1972), p. 61.

prospective teachers and competencies possessed by teachers as a result of teaching approaches and/or media programs.

Lasher¹⁷ surveyed elementary teachers to determine what media competencies should be included in a media course. His findings resulted in recommendations of media competencies which should be included in media training for teachers. His list tends to show commonality of terminology and similar if not identical enumeration of those media competencies reported by other researchers, especially those specified in the Meierhenry Report.

Methods of Developing Media Competencies

Most of the previously mentioned studies in this literature survey were concerned not only with the identification of media competencies but also with the procedures for developing these competencies in teacher education programs. There was some concern about the lack of emphasis by teacher training institutions for developing media competencies. McMahon¹⁸ reported in her study that only 26 percent of the affiliates of the National Council for the Accreditation of

¹⁷ Edward B. Lasher, "Educational Media Attitude of and Competencies for Elementary Teachers" (unpublished doctoral dissertation, The University of North Dakota, 1971).

¹⁸ Marie McMahon, "A Challenge: The Systems Approach in Development of Media Competencies," Audiovisual Instruction XII (December, 1967), p. 1060.

Teacher Education required media instruction. Lawrence¹⁹ found that only 6 percent of the selected teachers' colleges and none of the State Departments of Public Instruction required a basic media course for the preparation and certification of classroom teachers. However, he found that the majority of teachers and principals felt that a basic media course should be required for the preparation and certification of teachers.

McMahon in her investigation of a systems approach for developing media competencies of prospective teachers offered two alternatives to a basic audiovisual course:

(1) media experiences during student teaching and (2) an integrated methods-media course or a tentative commitment to develop competencies in a professional education course.²⁰ McMahon noted that in de Kieffer's study student teachers perceived to have received more competencies by experiences than they did while enrolled in professional methods courses.²¹

¹⁹H. H. Lawrence, "The Development of a Model Media Course for the Professional Preparation of Elementary and Secondary Teachers in Arkansas" (unpublished doctoral dissertation, University of Arkansas, 1969), Dissertation Abstracts, Vol. 30, p. 521.

²⁰McMahon, "A Challenge."

²¹Robert E. and Melissa H. de Kieffer, Media Milestones in Teacher Training (Washington D. C.: Educational Media Council, 1970), p. 57.

The literature, as evidenced by the studies of Harris,²² Benda,²³ Oliver,²⁴ and Streeter²⁵ seem to indicate that teachers with media preparation tended to use more media with greater effectiveness. However, there was little evidence found in the literature that a particular method or approach for developing competencies was best in all instances. Fulton²⁶ reported that studies of the practices for developing media competencies revealed four basic approaches. These approaches had previously been discussed by the conferees of the 1958 Okoboji conference.²⁷ The approaches or patterns were as follows: (1) formal media (audiovisual) course; (2) the laboratory approach; (3) the integrated or fused approach; and (4) integrated methods media course.

Torkelson declared that "there was not a proven overall superiority of one pattern of teaching media over another."²⁸ Torkelson's study covered a four-year period

²²R. W. Harris, "Uses of Audio-Visual Materials in Adult Education," Audio-Visual Guide, XIX (1953), pp. 5-6.

²³Harold W. Benda, "A Plan for the Improvement."

²⁴Oliver, A Study of Pre-Service Teacher Education.

²⁵Streeter, "A Study of Relationships."

²⁶W. R. Fulton, "A Multiple Approach for a Multi-Purpose Institution," Audiovisual Instruction, IV (January, 1959), p. 18.

²⁷"The Okoboji Report," p. 4.

²⁸Torkelson, An Experimental Study, p. 61.

and compared four different approaches for developing media competencies of prospective teachers: (1) separate course (2) integrated methods course (3) student teaching and (4) self-study.

Zimmerman²⁹ suggested that the pre-service teacher education programs in Oklahoma could be strengthened by requiring all prospective teachers to take an audiovisual course. Fulton, writing in the Journal of Teacher Education, contended that the formal course was not the complete answer. He pointed to the disadvantages of extreme scheduling and inadequate laboratory facilities.³⁰

King³¹ investigated the media programs in Oklahoma schools and concurred with the earlier recommendations of Zimmerman³² that the pre-service preparation of teachers could be strengthened by requiring all prospective teachers to have some type of educational media experiences either by formal course or as part of a teaching methods course.

²⁹Harry P. Zimmerman, "An Evaluation of Pre-Service Audio-Visual Experiences," p. 87.

³⁰W. R. Fulton, "Audio-Visual Competence and Teacher Preparation," Journal of Teacher Education, XI (December, 1960), p. 493.

³¹Kenneth L. King, "An Evaluation of Teacher Utilization of Selected Educational Media in Relation to the Level of Sophistication of the Educational Media Program in Selected Oklahoma Public Schools" (unpublished doctoral dissertation, University of Oklahoma, 1969), p. 159.

³²Zimmerman, "An Evaluation of Pre-Service Audio-Visual Experiences," p. 94.

Brookens found that the media competencies and media utilization of teachers who had had pre-service media training was higher than that of teachers with no training.³³

Many educators feel that media competencies can be developed through integrated methods classes. Such an approach has been favorably endorsed in the writings of Fulton and White³⁴ and Ingham.³⁵ Gibbony noted that the entire teacher education program should present a continuous demonstration of the effective use of media and it should facilitate student use of media materials throughout their pre-service training.³⁶

Oliver³⁷ reported favorable evidence toward an integrated approach and a laboratory approach. Siegal³⁸ recommended that pre-service preparation for elementary teachers include a basic media course and the development of media competencies be integrated in professional courses, methods courses and student teaching. King³⁹ reported in his study that teachers having had college courses

³³Brookens, "An Exploratory Study."

³⁴Fulton and White, "What Constitutes Teacher Competence."

³⁵G. E. Ingham, "Pre-Service Media Training," Audio-visual Instruction, XIV (1969), pp. 55-57.

³⁶Gibbony, "The Instructional Material Center."

³⁷Oliver, "A Study of Pre-Service Teacher Education."

³⁸Siegal, "The Competencies in the Use."

³⁹Richard L. King, "A Study of Selected Factors."

with instructors who effectively utilized media in the instructional process had a significant relationship to the frequency with which teachers used media. Kennard⁴⁰ found that institutions with higher quality educational media programs tended to graduate teachers with a higher level of media competency than those teachers who graduated from institutions with lower quality media programs.

As suggested by the 1958 Okoboji Conference, the laboratory project approach is one means of developing media competencies.⁴¹

"This is a program which gives all students sufficient time in an audiovisual laboratory to complete projects involving competencies applicable to their teaching interest. Success is contingent upon acceptance and participation by the entire faculty, the requirement that all students complete the program, the services of professionally qualified laboratory assistants and a method of evaluating the student's accomplishments."

Meierhenry suggested that "education of the future will become much more of a laboratory approach with media presenting the raw data and 'stuff' out of which the various competencies related to the teaching act are developed and built with the help of a dynamic and everlearning staff."⁴²

⁴⁰ Kennard, "Media Competencies of Teachers."

⁴¹ "Okoboji Report," p. 5.

⁴² Meierhenry, Media Competencies for Teachers, p. 214.

He believed that the prospective teachers can learn independently from all types of instructional media which they will use later in the teaching field.⁴³

"Media are used, therefore, to facilitate learning, and the time to develop the competency is when a demand is made upon the student to utilize the media for his own learning or as a means of assisting someone else to learn."

Automated Self-Instructional Approach to Developing Media Competencies

The automated self-instructional approach differs from the laboratory approach in that the program includes the substantive content of the media field. Torkelson⁴⁴ compared the approaches or patterns for teaching and self-study. His study involved two years of visiting 235 teacher graduates who had had pre-service media training in one of the four methods. Even though he did not find one teaching method superior to another, he did reveal some findings relating to self-study which were pertinent to the present study.⁴⁵

"In terms of the teaching of equipment operation, the Self-Study pattern proved that this kind of perceptual-motor skill can be learned through the avenue of specially-prepared materials without the presence of the instructor."

⁴³Ibid., p. 215.

⁴⁴Torkelson, An Experimental Study.

⁴⁵Ibid., p. 152.

In terms of attitudes towards the use of audio-visual materials and equipment in teaching, it appears that the environment and motivation of self-instruction had a greater influence upon the students in the Self-Study pattern than the other patterns."

Torkelson further indicated that there appeared to be evidence that the self-discovery and personal involvement in the process of determining the merits for audio-visual materials in learning may effect the attitudes of prospective teachers which could result in greater utilization of media in in-service teaching.⁴⁶

Curl indicated that automated self-instruction techniques offer several advantages:⁴⁷

"...instruction is consistent while allowing for individual differences in aptitude; equipment inventories can be limited to one item of each type, excepting display projectors; equipment may be left set-up; scheduling conflicts are all but eliminated; no student need feel 'forced' into a humiliating mechanical confrontation before others; fewer instructors are needed and they can use their time and class lecture time for discussing problems of evaluation, utilization, and curricular integration of media."

On the basis of an earlier study, Curl concluded that certain perceptual-motor skills relating to the operation of certain photographic equipment could be taught to

⁴⁶ Ibid.

⁴⁷ David H. Curl, "Self-Instructional Laboratories for Teaching Operational Skills" in Meierhenry, Media Competencies for Teachers, p. 117.

adult foreign students individually by means of a self-instructional type program.⁴⁸

In his position paper position paper, Curl described at length some of the different self-instructional programs which have been implemented at different universities and colleges. From this review, he concluded that the optimum sequence format for self-instructional laboratories had not been determined, but that such a model could emerge in the synthesis of a programmed text and a combination of Syracuse and Connecticut plans for organizing and presenting sequences of material.⁴⁹

In the Syracuse University self-instructional program, students follow a predetermined sequence, beginning with one piece of equipment, learning its operation by using a flip chart and instruction sheet, and then progressing to a more complex device. Operation of any given item calls for the mastery of all previous equipment in the sequence.⁵⁰

At the University of Connecticut, students are free to work in any sequence with any part of the twelve sections of carefully programmed materials. A unique feature of the Connecticut plan is the emphasis on developing the teacher trainee's self-confidence with equipment and processes

⁴⁸Curl, "An Exploratory Study."

⁴⁹Curl, "Self-Instructional Laboratories," pp. 110-121.

⁵⁰Ibid., pp. 110-111.

rather than on the perfection of the skills alone. Students appeared to be motivated sufficiently without the need of performance tests. Students were allowed to determine their own practice schedules and set their own pace without close supervision.⁵¹

Curl concluded: "Students can teach themselves fundamental skills to a very satisfactory level of performance. Perhaps they can teach themselves far more than anyone now realizes, at the same time harvesting dividends of discovery and self-confidence."⁵²

There have been attempts to investigate the self-instruction method as a means for achieving proficiency in equipment operation. Colwell⁵³ found that there was a difference in the achievement of students as measured by a written test and by performance test between students taught selected audiovisual machine operation by the conventional lecture-demonstration-practice method and self-instruction. His study supported the findings of Curl⁵⁴ in that students

⁵¹ Ibid., pp. 112-113.

⁵² Ibid., p. 121.

⁵³ Dell M. Colwell, "The Effectiveness of Self-Instructional Techniques in Teaching Selected Phases of an Introductory Course in Audio-Visual Education" (unpublished doctoral dissertation, State University of South Dakota, 1963), Dissertation Abstracts, Vol. 24, pp. 4565-4566.

⁵⁴ Curl, "An Exploratory Study," p. 119.

taught by the self-instructional method performed better on the tests than students in the conventional method.

Gabriel⁵⁵ and Allred⁵⁶ supported the previous studies in the idea that self-instruction is an adequate means for providing pre-service teachers with proficiency in audio-visual equipment operation.

There appeared to be few studies which had investigated self-instructional methods which included all the areas of media competencies--equipment operation, utilization, selection and production. If such programs are in operation, little has been reported about them. Such a program was implemented at the University of Oklahoma and subsequent studies by Paschall,⁵⁷ Jordan,⁵⁸ and Tipling,⁵⁹ have shown that students in the automated self-instructional course perform equally well as students taught by traditional methods. Paschall found that students in the media course "Audiovisual Materials in Teaching" who received self-

⁵⁵Lloyd M. Gabriel, "A Comparison of Self-Instructional Systems in an Educational Media Laboratory" (unpublished doctoral dissertation, Washington State University, 1966), Dissertation Abstracts, Vol. 27, p. 2914.

⁵⁶J. D. Allred, "A Study of the Comparative Effectiveness of Three Methods of Teaching the Operation of Selected Audiovisual Equipment" (unpublished doctoral dissertation, University of Oklahoma, 1967).

⁵⁷Paschall, "Effectiveness of Two Instructional Systems."

⁵⁸Jordan, "Integrating Discussion Sessions."

⁵⁹Tipling, "Evaluation of the Effects."

instruction in a laboratory using the software which he had developed performed as well as students in the traditional classroom.⁶⁰

Jordan, using the same self-instructional laboratory to teach educational media, added the variable instructor-led and student-led discussion sessions. He found that there was no significant difference in the performance of students in the discussion groups and those who had only the self-instructional treatment.⁶¹

Tipling investigated the revised course, using a "Student Guide" in conjunction with the filmstrip-tape program. He concluded that such a self-instructional method of teaching media courses used under similar conditions could result in better student achievement than a more conventional-lecture method of media instruction.⁶²

Summary

Media competencies of prospective teachers were discussed in the first section of this literature survey. It was found that generally speaking, educational media competencies can be categorized into four areas: (1) selection; (2) utilization; (3) production and (4) equipment operation. There were a number of studies reported which had as their

⁶⁰Paschall, pp. 57-60.

⁶¹Jordan, "Integrating Discussion Sessions."

⁶²Tipling, "Evaluation of the Effects," pp. 49-50.

general objective the identification of the minimal competencies prospective teachers should possess. These studies indicated that there is a commonality of phraseology found in the various proposed lists and a lack of experimental evidence to support any one list of competencies as being superior to another. Most of the researchers referred to the Meierhenry report recommendations as a point of departure, if not the basis, in the formation of competency lists. Seemingly, even though there is a general consensus of the competencies needed by teachers, little research has dealt with the actual assessment of media competencies possessed by teacher graduates.

The second section of the literature survey dealt with the methods for developing media competencies of prospective teachers. Generally speaking, the methods or approaches are by formal course, integrated-fused approach, laboratory approach or methods-media approach. It has been evidenced that no one method is superior to another, but it appears that teachers who have had exposure to media in their pre-service training use more media in their teaching and have a more favorable attitude toward the use of media in the teaching-learning situation.

Even though no one method is superior in preparing teachers for media proficiency, it was suggested in the third section of the literature review that the automated self-instructional method can serve as an adequate process

for developing media proficiency. It was further indicated that the automated self-instruction method has been as successful as other means in the teaching of equipment operation and production skills. There is also some indication that a self-automated course involving content information can prepare the prospective teacher as well as other methods.

In a study such as the present research effort, it is difficult to cite causal relationships, but it appears from the survey of the literature that there is a definite relationship between the type of media training and the perceived media competencies of classroom teachers. Certainly, there is little argument about the importance of including the utilization of educational media as an integral part of the teaching-learning act. An investigation of the perceived competencies of teacher graduates can offer to a teacher training institution a point of departure for determining a framework necessary for an empirical investigation of those competencies or behaviors needed by its graduates and for testing efficient and effective methods of media instruction which will best prepare its teachers to use educational media in the classroom.

CHAPTER III

METHODOLOGY AND PROCEDURES

The present exploratory field study investigated the differences among Oklahoma teacher graduates' perceptions of their competency in educational media and the level of training for these competencies which they received in Oklahoma's teacher education institutions. A total of three-hundred (N=300) first-year teacher graduates were asked to respond to two forty-one item data collection instruments which were used to record the teachers' perceptions. One-hundred fifty (N=150) teacher graduates were from the University of Oklahoma (75 had had a formal media course as part of their teacher education program and 75 had not had a formal media course as part of their teacher education program). The additional one-hundred fifty (N=150) teacher graduates were 1973 graduates from nine other State teacher education institutions (75 had had a formal media course as part of their teacher education program, and 75 had not had a formal media course as part of their teacher education program).

The survey questionnaire used in the present study was adapted from instruments developed by Kennard. The survey questionnaire and a cover letter were mailed to each of the 300 teacher graduates who had been randomly selected as

potential participants in the study. Two follow-up letters, a second mailing of the survey questionnaire, and an intensive telephone campaign produced two-hundred twelve (N=212) usable responses. Thirty responses were randomly selected from each of the four teacher sub-groups, and the data from these questionnaires were used to test five null hypotheses. A Student's t test was the primary statistic used in the analysis of the data.

The methods and procedures used in the present study were classified into three time orientations or phases. These phases were as follows: (1) the Pre-Survey Procedures, (2) the Survey (data collection) Procedures, and (3) the Data Analysis Procedures. Each of these phases is discussed in detail in the following sections.

Pre-Survey Procedures

The pre-survey procedures included those activities which preceded the actual data collection. These included such tasks as the design of the study, selection of the teacher population and samples, and the selection and/or the development of the data collection instruments. Each of these procedures is elaborated in more detail in the present chapter of the dissertation.

Design of the Study

The research design is the means by which the investigator obtains answers to the research questions and controls

variance. According to Kerlinger research design "sets up the framework for 'adequate' tests of the relations among variables."¹ Design. . .tells us what observations to make, how to make them and how to analyze the quantitative representations of the observations."

The design of the present study could correctly be classified as an exploratory field study. Kerlinger² has stated that field studies are ex-post facto scientific inquiries which investigate first a social or institutional situation and then studies the relations of the perceptions or the behavior of individual in that situation. The paradigm of the present exploratory field study is presented in Figure 1.

Establishing the Limits of the Population and Samples

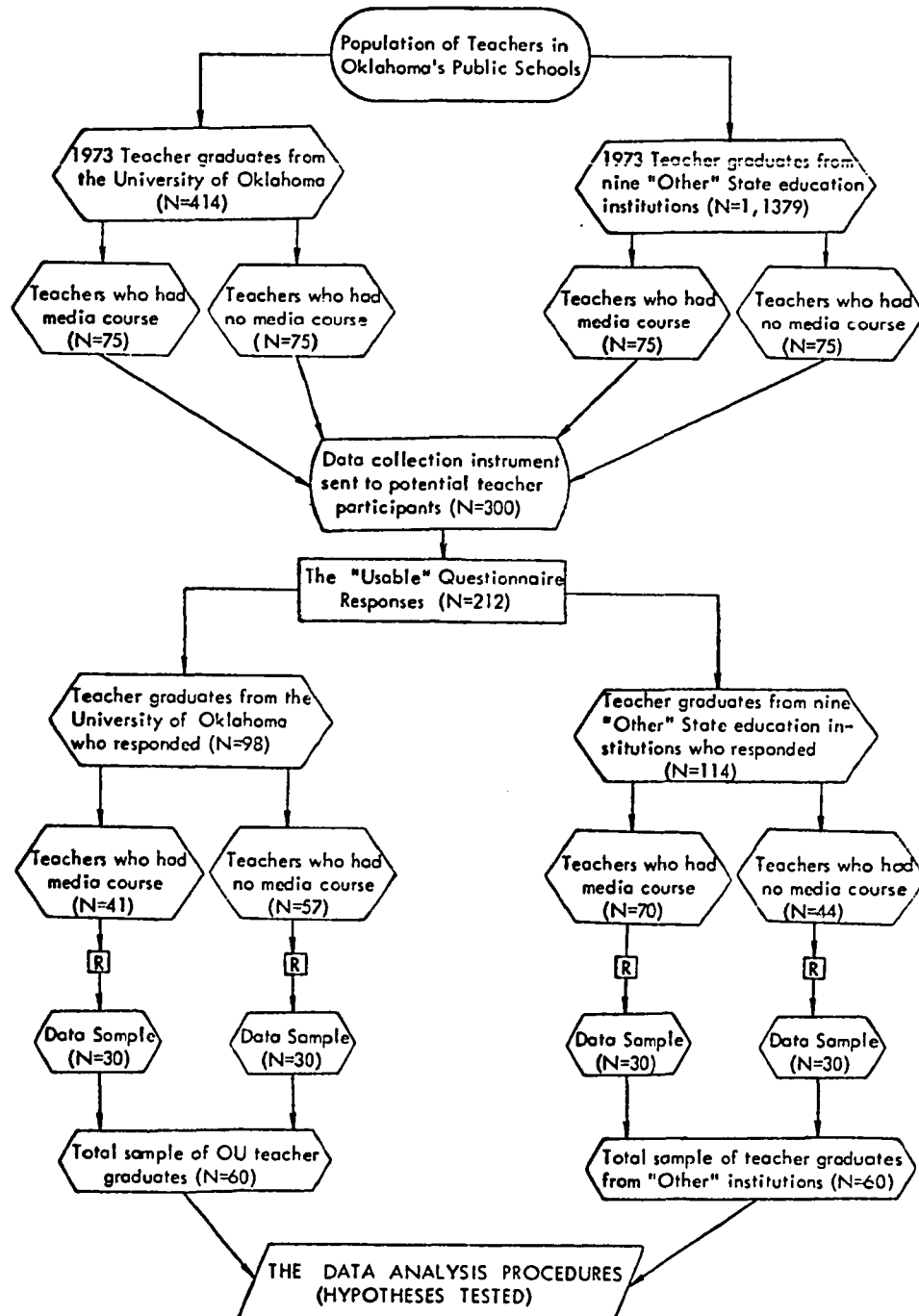
Another pre-survey procedure was to choose the teachers for the study for the purpose of collecting the data needed to answer the questions posited in the statement of the problem. The population of the study was comprised of the 1973 teacher graduates from selected Oklahoma teacher education institutions who were in their first year of teaching in Oklahoma's public schools. The identification of those subjects (teachers) for the study who met the criteria which had been established earlier was a necessary consideration

¹Kerlinger, Foundations of Behavioral Research, p. 307.

²Ibid., p. 388.

Figure 1

FLOWCHART OF THE RESEARCH DESIGN USED IN THE STUDY



in the selection of the teacher sample. The limitations which were placed on the selection of teacher participants were as follows:

- (1) Teacher graduates from the University of Oklahoma who graduated in the spring or summer of 1973 and who began teaching in Oklahoma's public schools during the fall term of the 1973-74 academic year.
- (2) Teacher graduates from each of the other nine selected Oklahoma teacher education institutions who graduated in the spring or summer of 1973 and who began teaching in Oklahoma's public schools during the fall term of the 1973-74 academic year.

Determination of the Participating Population.

One of the first tasks before the selection of sample subjects was to select those teacher education institutions in Oklahoma other than the University of Oklahoma, who met the previously established criteria of this report. Using the letters of intent found in the files of the Teacher Education Division of the Oklahoma State Department of Education and by telephone interview, it was found that nine other state supported teacher education institutions would meet the priorities of this study. These nine institutions are accredited by NCATE; offer an educational media course which does not include an automated

self-instructional course as a part or as a whole of the course; also allowed some students to achieve media proficiency in some manner other than formal course prior to 1973; and offered to students either by formal course or by other means learning experiences whereby they could acquire certain knowledge of the substantive content in educational media as well as a laboratory approach for achieving skills in production and equipment operation.

The next task was to identify those 1973 teacher graduates from the selected teacher education institutions who could be possible subjects for the study. Using the records compiled by the Personnel Department of the Oklahoma State Department of Education, names of teachers as possible subjects were selected using the following limitations:

- (1) undergraduate degree from one of the selected Oklahoma teacher education institutions as prescribed by this study;
- (2) spring or summer certification, 1973 and (3) zero years teaching experience.

The compiled list of possible subjects was subsequently divided into two groups: those who graduated from the University of Oklahoma (N=414) and those who graduated from the other selected teacher education institutions in Oklahoma (N=1,379).

Determining the Sample Participants

Since it was impossible to survey the total number of teacher graduates within the parent population (N=1,793), it was necessary to select a representative sample from each group. At the same time, it was necessary to choose a relatively large number since testing several of the hypotheses required further subdivision of the two groups. Small numbers within any one of the subdivisions could seriously affect the validity of the statistical results of the comparisons.³

In order to avoid such situations, it was necessary to determine the minimum number of subjects which would be needed to make the data acceptable.⁴ The results of the size-determination calculations showed that a minimum number of thirty (N=30) subjects would be needed in order to make meaningful comparisons with a Student's t test. Since there were four groups involved in the comparisons, it was necessary to establish a total number of usable responses at one-hundred twenty (N=120) (See Figure 1). However, since there was no assurance of a one-hundred percent return of the survey instrument, it was necessary to select

³Sidney Siegel. Non Parametric Statistics for the Behavioral Sciences (New York: McGraw Hill Book Co., 1956), p. 12.

⁴Roger E. Kirk. Experimental Design: Procedures for the Behavioral Sciences (Belmont, Calif.: Brooks/Cole Publishing Co., 1968), pp. 9-11.

enough subjects to allow for survey attrition and a certain number of unusable responses. Based on a forty percent (40%) usable response return, 120 responses (60 in each teacher group) required the researcher to send questionnaires to approximately three hundred ($N=300$) randomly selected teacher graduates at the first mailing.

One-hundred fifty ($N=150$) potential teacher participants were selected from each of the teacher populations. Other limitations placed on the teacher graduates selection were as follows: (1) date of graduation; only those who graduated during the Spring or Summer of 1973 were considered and (2) teacher training program; whether the selected teacher had a formal media course as part of their teacher education program.

The Teacher Certification Division of the Oklahoma State Department of Education provided information concerning the graduation dates, the education institution the teacher graduated from, and the nature of the courses taken during the teacher education program. Those teacher graduates who met these criteria were considered as part of the teacher population. Names were randomly drawn from these two populations until the following groups were formed: (1) seventy-five ($N=75$) teachers who graduated from the University of Oklahoma during the spring or summer of 1973 who had a formal media course as part of their teacher education program, (2) seventy-five ($N=75$) teachers who

graduated from the University of Oklahoma during the spring or summer of 1973 who did not have a formal media course as part of their teacher education program, (3) seventy-five (N=75) teachers who graduated from other State education institutions during the spring or summer of 1973 who had a formal media course as part of their teacher education program, and (4) seventy-five (N=75) teachers who graduated from other State education institutions during the spring or summer of 1973 who did not have a formal media course as part of their teacher education program. An example of the sampling paradigm used in the selection of the teacher graduates is shown in Figure 1.

The second stage of sampling, shown in the Research Paradigm in Figure 1, occurred after respondents completed the survey instrument. The usable responses (N=212) grouped by (1) University of Oklahoma and (2) other State institutions were used in the data analysis procedures. Later, each group was then divided into two subgroups; (1) teacher graduates who had a formal media course as part of their teacher education program and (2) teacher graduates who did not have a formal media course as part of their teacher education program. The distribution of usable questionnaire responses received from the selected teacher participants is presented in Table 1.

TABLE 1
DISTRIBUTION OF USABLE QUESTIONNAIRE RESPONSES RECEIVED
FROM THE VARIOUS GROUPS OF TEACHER GRADUATES

Teacher Group	Number Having a Formal Media Course	Number Having No Formal Media Course	Total Number of Respondents
Teachers who graduated from the University of Oklahoma during the Spring or Summer of 1973	41	57	98
Teachers who graduated from Other State educa- tion institutions during the Spring or Summer of 1973	70	44	114
TOTALS . . .	111	101	212

Thirty questionnaire responses were randomly selected from each subgroup shown in Table 1. The final number of OU teachers chosen for inclusion in the data analysis was sixty (N=60); thirty (N=30) who had a formal media course as part of their teacher education program and thirty (N=30) who did not have a formal media course as part of their teacher education program. The final number of teachers from other State education institutions was also sixty (N=60). Thirty (N=30) of these teachers had a formal media course as part of their teacher education program and thirty (N=30) did not have a formal media course as part of their teacher education program.

Selecting the Data Collection Instrument

The next step in the pre-survey procedures was the selection of the data collection instrument. A thorough search of the literature failed to produce a satisfactory data collection instrument. It was concluded that instruments to be used in the quantification of educational media competencies are in the experimental and formulation stages. Previous research efforts in the area of educational media have encountered the same difficulty, and have usually been forced to develop their own data collection instruments from ideas and speculations attempted by their predecessors. In

summarizing the situation, Ward and Henderson state;⁵

"At present, since there is little useful evidence about what instructional variables are important, and even less evidence that any one way of getting descriptive data is better than another, there is really no reason not to copy, no reason not to adapt, and certainly no reason not to create . . ." (when developing an instrument for collection of educational media data.)

The instruments chosen for collecting the data in the present experiment were developed by Kennard.⁶ His instruments were chosen for several reasons. The most important of these reasons were as follows: (1) Kennard's two instruments, the Media Competency Survey and the Media Competency Checklist, were developed from two authoritative sources in the media field. These were the Meierhenry report⁷ and a study by Fulton and White.⁸ The forty-one (N=41) media competencies listed in the two surveys were taken from the Meierhenry report. These competencies were originally listed in the Kemp and Torkelson papers. The four divisions or categories of these forty-one statements were those listed by Fulton and White and discussed in the previous chapter of this paper. (2) The statements made in

⁵Ted Ward and Judy Henderson. "Guidelines for Building Teacher-Behavioral Research Instruments," Papers of the Institute No. 36, Learning Systems Institute, Michigan State University, 1966.

⁶Kennard. "Media Competencies of Teachers," pp. 88-90.

⁷Meierhenry. Media Competencies, pp. 106-111.

⁸Fulton and White, "What Constitutes Teacher Competence," pp. 47-67.

Kennard's instruments were compared with statements from other instruments used in similar studies and were considered to be more current and comprehensive as far as the various areas of educational media. (3) The media competencies from Kennard's instruments were stated in behavioral terms making them more meaningful to beginning teachers and allowing the teacher to easily judge his level of competency on a five-point continuum. (4) Kennard followed systematic and logical methods in establishing the reliability and validity of his data collection instruments. Faculty members at the University of Oklahoma examined the first draft of the questionnaire for content validity. After a revision of the instruments, based on the faculty's recommendations, a rating scale was devised with the help of test and measurement experts and subjected to a limited field test. After field testing, further revisions were made and the revised instrument was used to collect data for a research report. The instrument was administered to 215 graduate and undergraduate students who were asked to report any ambiguities and to make specific suggestions for formulating the final data collection instrument. The instrument was then submitted to the Dissertation Committee and faculty members in research and statistics for their corrections and/or approval. (5) The present study required instruments for two self-reported measures, and Kennard's instruments could be readily adapted for use in the present study.

Composition of the Data Collection Instruments

Kennard's two instruments were combined into one data collection instrument for use in the present study. The three sections of the data collection instrument shown in Appendix A were as follows:

Section I: Personal Data. This section solicited professional information and identified the participants according to the institution from which they graduated, the kind of media training they had in their teacher education program, type of certification, date of graduation, and present teaching position. Most of this information was already available to the researcher and the teacher graduates responses were simply used as a means of verification.

Section II: Media Competency Survey. The forty-one items contained on this section of the survey solicited the teacher graduates' perceptions about the media competencies which they felt they possessed at the time they completed the data collection instrument. Statements about selected competencies are arranged under four categories. Nine competencies are listed under the category of Preparation and Use of Physical Facilities, twelve competencies are listed under the category of Production of Materials, ten competencies listed under the category of Selection and Evaluation of Educational Media, and ten competencies are listed under the category of Utilization of Media.

Completion of Section II required teacher graduates to indicate their perceived level of competency on a five-point rating continuum. Four of the choice points were given the same numerical values and definitions as that assigned by Kennard. However, the midpoint (choicepoint #3) was used to have the teacher graduates indicate those media competencies which they claimed to have acquired after they began teaching.

Section III: Training for Media Competency Survey.

This section was used to determine the participant's perceptions of the level of media competency training they received during their teacher training program. This section listed the same forty-one competencies contained in the Media Competency Survey. The competencies were listed in the same four categories and responses were made on forced dichotomy (Yes/No) answer points. By making these responses the teacher graduates indicated whether or not they felt that they had had experiences or training related to that particular media competency. Teacher graduates were asked to consider the total teacher preparatory experience as opposed to the training received from a specific course or activity related to media competency preparation. The complete media competency survey instrument chosen for this study is presented in Appendix A.

The Survey Procedures

The second major phase of the methods and procedures was the survey procedures. The data collection (survey) procedures began as soon as the pre-survey procedures had been completed. Collecting the data from the chosen participants involved the distribution of the data collection instruments and taking the necessary steps to guarantee an adequate number of returns. These procedures are explained in detail in the following sections.

The survey questionnaire shown in Appendix A was mailed to the three-hundred (N=300) teacher graduates who had been chosen for participation in the study on/about February 1, 1974. A cover letter accompanied each of the questionnaires explaining the purposes of the study, asking for the teacher's cooperation in the research effort, and giving detailed instructions for completing the questionnaire. A copy of this cover letter is presented in Appendix B of this dissertation.

Approximately fifty percent (50%) of the teacher participants responded to the initial mailing. However, this percentage was too low to be considered satisfactory, and a follow-up letter was sent to the non-respondents. This follow-up letter was sent approximately two weeks after the initial mailing of the survey instruments. This follow-up letter produced some responses, but the number and percent of returns was still too low to be acceptable.

A second questionnaire was mailed to the teachers who had not responded to the initial mailing or the follow-up letter. This questionnaire was accompanied by the usual cover letter presented in Appendix B and the second follow-up letter shown in Appendix D. One thing which was stressed in the second follow-up letter was that the non-respondent call the researcher (collect) if there were any questions concerning the completion of the survey instrument. This second mailing and follow-up also produced some responses from the teacher participants.

In a final attempt to secure as many returns as possible, the researcher began an active telephone campaign one week after the second mailing of the questionnaire. This telephone campaign was conducted for approximately one week and ended on March 15, 1974. This marked the end of the data collection procedures.

Questionnaire Response Patterns of the Teacher Graduates.

One of the major problems encountered in the study was soliciting responses from those teachers who had received questionnaires. However, the researcher sent two follow-up letters (See Appendices C and D) and made a second mailing of the survey questionnaire to the non-respondents. All these procedures increased the number of questionnaires returned. A minimum level of sixty percent (60%) return had been established prior to the initial mailing of the survey questionnaire, but the researcher sought as many returns as

possible even though this goal was attained early in the research effort. At the end of the eighth week over eighty-one percent (81.33%) of the questionnaires had been returned (N=244). At the same time, thirty-two (N=32) of the questionnaire responses were not usable, and this reduced the number of usable responses to two-hundred twelve (N=212). This represented over seventy percent (70.67%) of the total number of questionnaires mailed. The response patterns of the teacher graduates participating in the study are shown in Table 2.

Data Analysis Procedures

After the data were collected from the questionnaire shown in Appendix A, the data analysis procedures began. The data analysis procedures consisted of the preliminary data preparation and the statistical calculations needed to test the hypotheses.

Preliminary data analysis procedures consisted of coding the questionnaire data and entering them on IBM cards. The card format used to enter the data is presented in Appendix E with an 80-80 listing of the IBM cards. There were two IBM cards for each of the 120 participants. The data contained on these cards were used to test the five hypotheses.

The second area of data analysis procedures was the statistical analysis needed to test the five hypotheses. Completion of these procedures required the selection of the

TABLE 2
RESPONSE PATTERNS OF TEACHER GRADUATES FROM OKLAHOMA
TEACHER EDUCATION INSTITUTIONS

Institutions	Teacher Graduates	Number of Questionnaires Sent	Number of Usable Returns
University of Oklahoma	414	150	98
Other Institutions:			
1	396	37	28
2	219	23	19
3	62	8	6
4	303	35	29
5	142	14	11
6	183	15	10
7	18	4	2
8	34	9	7
9	22	5	2
Total	1,793	300	212

the proper statistical procedures. Five criteria suggested by Kerlinger⁹ considered were in the selection of the statistical tests to be used in the analysis. These criteria were as follows: (1) the nature of the null hypothesis being tested, (2) the measurement level of the data used in the calculations, (3) the number of groups being compared... at any one time, (4) the number of individuals in the sample subgroups, (5) the assumptions underlying the statistical tests being considered. After taking these criteria into consideration, the Student's t test was selected as the appropriate testing statistic. The first null hypothesis was tested with a t test for two correlated sample groups. However, the remaining four null hypotheses were tested with a t test for two independent sample groups. The null hypotheses, the testing statistic used, and the data involved in the calculations are shown in Figure 2.

⁹Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, 1973), pp. 137-139.

Figure 2

THE STATISTICS CHOSEN TO TEST EACH OF THE NULL HYPOTHESES

Null Hypothesis Number	Null Hypothesis	Statistical Test Chosen	Data Involved in the Statistical Calculations
Ho ₁	There is no statistically significant difference between the level of media competency which teacher graduates perceive to possess and the level of media competency which they perceive to have received during their teacher education program in Oklahoma colleges and universities.	t-test for correlated sample groups	All measures on TEST I vs. all measures on TEST II
Ho ₂	There is no statistically significant difference between the level of media competency perceived by teacher graduates who had a formal media course as part of their teacher education program and the media competency perceived by teacher graduates who did not have a formal media course as part of their teacher education program.	t-test for independent sample groups	All "Course" measures on TEST I vs. all "No-course" measures on TEST I
Ho ₃	There is no statistically significant difference between the perceived level of training for media competency of teacher graduates who had a formal media course as part of their teacher education program and the perceived level of training for media competency of teacher graduates who did not have a formal media course as part of their teacher education program.	t-test for independent sample groups	All "Course" measures on TEST II vs. all "No-course" measures on TEST II
Ho ₄	There is no statistically significant difference between the level of media competency perceived by teachers from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the level of media competency perceived by teachers from other State institutions who did not have an automated educational media course as part of their teacher education program.	t-test for independent sample groups	"OU/Course" measures on TEST I vs. "Others/Course" measures on TEST I
Ho ₅	There is no statistically significant difference between the level of training for media competency perceived by teacher graduates from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the level of training for media competency perceived by teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program.	t-test for independent sample groups	"OU/Course" measures on TEST II vs. "Others/Course" measures on TEST II

CHAPTER IV

RESULTS OF DATA ANALYSIS

Responses made by one-hundred twenty (N=120) randomly selected teachers who had graduated from Oklahoma's colleges and universities during the spring or summer of 1973 were analyzed in an attempt to compare the participants' present level of media competency with the level of media competency they felt they had acquired through participation in a teacher education program in one of the State's teacher education institutions. All teacher graduates responded to a Media Competency Survey Questionnaire which is designed to determine the respondent's current level of media competency (Test I) and the level of competency they felt they received through their teacher education program (Test II). Data collected from the forty-one items of each Test were used to test five null hypotheses which had been stated in Chapter I. Hypotheses were tested comparing the: (1) media competency level of teacher graduates who had taken an educational media course during their teacher education program and those who had not taken such a media course and (2) media competency levels of teacher graduates from the University of Oklahoma and media competency levels of teacher graduates from nine other teacher education

institutions in the State. Several ancillary comparisons were made in order to further explain the results of the five hypotheses.

The statistical results obtained from testing the hypotheses are presented in this chapter, in conjunction with several ancillary findings. Before the results are presented, however, the format used for presenting the results of each hypothesis is explained as follows: In testing each hypothesis, the exact null proposition tested is presented. This is followed by the statistical procedures used, the tabled results (These tables also contain the descriptive statistics of the data used in making the comparison.), and a short explanation of the findings derived from testing each null hypothesis. This same format is followed for all five hypotheses. The ancillary findings (results) are followed by a short summary of all the results obtained in the study.

Results of Testing Null Hypothesis Number One (H_{01})

The exact null proposition of hypothesis number one was tested as follows:

H_{01} There is no statistically significant difference between the level of media competency which teacher graduates perceive to possess and the level of media competency which they perceive to have received during their teacher education program in Oklahoma colleges and universities.

The first null hypothesis was tested by comparing all respondents' scores from Test I and from Test

II by using a t test for two correlated sample means. It was also necessary to make a transformation of the teacher graduates' scores on one test or the other. An inspection of the two data collection instruments will show that the total score on one instrument (Test I) may go as high as 205 (41 items with a maximum rating of 5; $41 \times 5 = 205$). However, the maximum score possible on Test II is 82 (41 items with a maximum rating of 2; $41 \times 2 = 82$). No meaningful comparison could be made between the mean ratings from these two instruments without first transforming the scores from each to a common meter. This was accomplished by making a linear transformation of the teacher graduates' responses from Test II. Each response from Test II was multiplied by 2.50 as a means of placing the responses on the same meter as those appearing on Test I. Table 3 contains the means and standard deviations computed for the raw measures from Test I, the raw measures from Test II, and the transformed measures from Test II. This table also contains the correlation between the measures on Test I and Test II, the calculated t value, and the significance level of the results.

The results presented in Table 3 indicate that there was a highly significant difference between the level of media competency which teacher graduates perceived to possess and the level of media competency which they perceived to have received in their teacher education program

TABLE 3

A COMPARISON OF THE LEVEL OF MEDIA COMPETENCY PERCEIVED BY TEACHER GRADUATES
AND THE LEVEL OF MEDIA TRAINING WHICH THEY PERCEIVE TO HAVE RECEIVED
DURING THEIR TEACHER EDUCATION PROGRAM

Source of Data	Mean	Standard Deviation	Correlation Between Test I Scores and Test II Scores	Calculated t-Value	Significance Level
Teacher's Scores from Test I: (Perceived level of competency NOW) (N=120)	167.51	21.427			
			$r = 0.657$	$t = 3.863$	$<.001$
Teacher's Scores from Test II: (Competency level taught in the teacher ed- ucation program) (N=120)	160.85	23.83			

in Oklahoma's colleges and universities. These results allowed the researcher to reject the first null hypothesis.

Results of Testing Null Hypothesis Number Two (Ho₂)

The exact null proposition of hypothesis number two was tested as follows:

Ho₂ There is no statistically significant difference between the level of media competency perceived by teacher graduates who had a formal media course as part of their teacher education program and the media competency perceived by teacher graduates who did not have a formal media course as part of their teacher education program.

The second null hypothesis was tested by comparing the Test I scores of teacher graduates who had a formal media course as part of their teacher education program with the Test I scores of teacher graduates who did not have a formal media course as part of their teacher education program. Scores of these two groups were compared with a t test for two independent sample means. The results of the statistical calculations are presented in Table 4. This table also contains the means and standard deviations of measures from Test I, the computed t value, and the significance level of the results.

The results presented in Table 4 indicate that there was a significant difference between the level of media competency perceived by teacher graduates who had a formal media course as part of their teacher education program and the level of media competency perceived by teacher

TABLE 4

A COMPARISON OF THE PERCEIVED LEVEL OF TRAINING OF TEACHER GRADUATES WHO HAD
A FORMAL MEDIA COURSE AND THE LEVEL OF COMPETENCY PERCEIVED BY TEACHER
GRADUATES WHO DID NOT HAVE A FORMAL MEDIA COURSE

Source of Data	Mean	Standard Deviation	Calculated t-Value	Significance Level
Scores from TEST I of Teachers Who Had a Formal Media Course as Part of their Teacher Education Program (N=60)	174.67	17.311		
			t = 3.883	< .001
Scores from TEST I of Teachers Who DID NOT Have a Formal Media Course as Part of their Teacher Education Program (N=60)	160.35	22.718		

graduates who did not have a formal media course as part of their teacher training program. These results allowed the researcher to reject the second null hypothesis.

Results of Testing Null Hypothesis Number Three (H_{03})

The exact null proposition of hypothesis number three was tested as follows:

H_{03} There is no statistically significant difference between the perceived level of training for media competency of teacher graduates who had a formal media course as part of their teacher education program and the perceived level of training for media competency of teacher graduates who did not have a formal media course as part of their teacher education program.

The third null hypothesis was tested by comparing the Test II scores of teacher graduates who had a formal media course as part of their teacher education program with the Test II scores of teacher graduates who did not have a formal media course as part of their teacher education program. Scores of these two groups were compared with a t test for two independent sample means. The results of the statistical calculations are presented in Table 5. This table also contains the means and standard deviations of measures from Test II, the computed t value, and the significance level of the results.

The results presented in Table 5 indicate that there was a significant difference between the perceived level of training for media competency of teacher graduates who had a formal media course as part of their teacher education

TABLE 5

A COMPARISON OF THE PERCEIVED LEVEL OF TRAINING OF TEACHER GRADUATES WHO HAD
A FORMAL MEDIA COURSE AND THE PERCEIVED LEVEL OF TRAINING OF TEACHER
GRADUATES WHO DID NOT HAVE A FORMAL MEDIA COURSE

Source of Data	Mean	Standard Deviation	Calculated t-Value	Significance Level
Scores from TEST II of Teachers Who Had a Formal Media Course as Part of their Teacher Education Program (N=60)	68.767	7.205		
			t = 5.741	< .001
Scores from TEST II of Teachers Who DID NOT Have a Formal Media Course as Part of their Teacher Education Program (N=60)	59.917	9.521		

program and the perceived level of training for media competency of teacher graduates who did not have a formal media course as part of their teacher education program. These results allowed the researcher to reject the third null hypothesis.

Results of Testing Null Hypothesis Number Four (H_{o4})

The exact null proposition of hypothesis number four was tested as follows:

H_{o4} There is no statistically significant difference between the level of media competency perceived by teachers from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the level of media competency perceived by teachers from other State institutions who did not have an automated educational media course as part of their teacher education program.

The fourth null hypothesis was tested by comparing the Test I scores of the University of Oklahoma teacher graduates who had an automated educational media course as part of their teacher education program with the Test I scores of teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program. Scores of these two groups were compared with a t test for two independent sample means. The results of the statistical calculations are presented in Table 6. This table also contains the means and standard deviations of measures from Test I, the computed t value, and the significance level of the results.

TABLE 6

A COMPARISON OF THE LEVEL OF COMPETENCY PERCEIVED BY UNIVERSITY OF OKLAHOMA GRADUATES WHO HAD AN AUTOMATED EDUCATIONAL MEDIA COURSE AND THE LEVEL OF COMPETENCY PERCEIVED BY GRADUATES FROM OTHER INSTITUTIONS WHO HAD NOT HAD AN AUTOMATED EDUCATIONAL MEDIA COURSE

Source of Data	Mean	Standard Deviation	Calculated t-Value	Significance Level
Scores from TEST I for OU Teacher Graduates Who Had an Automated Educational Media Course as Part of their Teacher Education Program (N=60)	176.167	17.085		
			t = 0.674	> .05
Scores from TEST I for Teacher Graduates from Other Institutions Who Had not Had an Automated Educational Media Course as Part of their Teacher Education Program (N=60)	173.167	17.405		

The results presented in Table 6 indicate that there was not a significant difference between the level of media competency perceived by teacher graduates from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the level of media competency perceived by teachers from other State institutions who did not have an automated educational media course as part of their teacher education program. These results would not allow the researcher to reject the fourth null hypothesis.

Results of Testing Null Hypothesis Number Five (Ho₅)

The exact null proposition of hypothesis number five was tested as follows:

- Ho₅ There is no statistically significant difference between the level of training for media competency perceived by teacher graduates from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the level of training for media competency perceived by teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program.

The fifth null hypothesis was tested by comparing the Test II scores of the University of Oklahoma teacher graduates who had an automated educational media course as part of their teacher education program with the Test II scores of teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program. Scores of these two

TABLE 7

A COMPARISON OF THE LEVEL OF TRAINING PERCEIVED BY UNIVERSITY OF OKLAHOMA
GRADUATES WHO HAD AN AUTOMATED EDUCATIONAL MEDIA COURSE AND THE
LEVEL OF TRAINING PERCEIVED BY GRADUATES FROM OTHER INSTITUTIONS
WHO HAD NOT HAD AN AUTOMATED EDUCATIONAL MEDIA COURSE

Source of Data	Mean	Standard Deviation	Calculated t-Value	Significance Level
Scores from TEST II for OU Teacher Graduates Who Had an Automated Educational Media Course as Part of their Teacher Education Program (N=60)	68.80	7.467		
			t = 0.036	> .05
Scores from TEST II for Teacher Graduates from Other Institutions Who Had Not Had an Automated Educational Media Course as Part of their Teacher Education Program (N=60)	68.73	6.933		

groups were compared with a t test for two independent sample means. The results of the statistical calculations are presented in Table 7. This table also contains the means and standard deviations of measures from Test II, the computed t value, and the significance level of the results.

The statistical results presented in Table 7 indicate that there was not a significant difference between the level of training for media competency perceived by teacher graduates from the University of Oklahoma who had an automated educational media course as part of their teacher education program and the level of training for media competency perceived by teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program. These results would not allow the researcher to reject the fifth null hypothesis.

Ancillary Findings

In the present study the researcher made every attempt to present all results of the study. In presenting these results it was necessary to supplement the results derived from testing the hypotheses with several ancillary findings. At least one ancillary finding and an accompanying table is presented for each null hypothesis tested. In each case the ancillary results are an attempt to further clarify results which had been presented earlier.

First Ancillary Finding

The results of testing the first hypothesis, presented in Table 3, indicate that there was a significant difference between the level of media competency which teacher graduates perceived to possess and the level of media competency which they perceived to have received in their teacher education program in Oklahoma's colleges and universities. The results presented in Table 3 indicate that the teacher graduates feel that they are much more competent in the use of media now ($\bar{X} = 167.51$) than they were at the time they received their media training ($\bar{X} = 160.85$).

The teacher graduates' present level of competency was compared with the level of their competency training on each of the four sub-areas of the data collection instrument to determine how much competency they felt they had gained in each specific area. Means and standard deviations of competency percentages are presented in Table 8. This table also contains the t values calculated between the mean values of each sub-area and the significance level of the results.

The results presented in Table 8 indicate that the greatest increase in media competency was noted on the area of Utilization of Media, the second greatest increase was shown in the area of Selection and Evaluation of Media Materials, the third greatest increase was shown in the area of Production of Materials, and the least amount of competency gained was in the area of Production and Use of Physical

TABLE 8

A COMPARISON OF THE TEACHER GRADUATES' PERCEIVED LEVEL OF MEDIA COMPETENCY
AND THEIR PERCEIVED LEVEL OF TRAINING FOR MEDIA COMPETENCY

Area of Media Competency	Perceived Level of Media Competency		Level of Training for Media Competency		Calculated t-Value	Significance Level
	Mean	Standard Deviation	Mean	Standard Deviation		
Preparation and Use of Physical Facilities in the Use of Media	83.00	15.46	72.78	25.18	$t = 1.038$	$> .05$
Production of Media Materials for the Classroom	64.75	19.51	43.42	19.14	$t = 2.704$	$< .05$
Selection and Evalu- ation of Media Materials	77.40	9.64	58.50	10.71	$t = 4.148$	$< .001$
Utilization of Media in the Classroom	77.00	7.01	56.80	13.51	$t = 4.198$	$< .001$

Facilities. The differences noted for all sub-areas were significant except for the area of Preparation and Use of Physical Facilities.

A second area of the first ancillary finding was related to the number of skills which the teacher graduates needed to acquire after they began teaching. The number and percent of the group's responses to each of the forty-one items contained on the Media Competency Checklist are presented in Table 9.

The data presented in Table 9 indicate that the one area with the highest percentages was the area of Utilization of Media. However, there were several competency tasks on the other sub-areas which were chosen more than ten percent (10%) of the time. Those chosen by more than 10 percent of the teacher graduates are denoted by an asterisk (*) in the table. A perusal of this table will readily show the weaknesses of the teacher education programs which the teacher graduates participated in. Here again, the greatest areas of weakness appear to be the Utilization of Media and the Selection and Evaluation of Media. This finding is elaborated further in the conclusions of Chapter V.

Second Ancillary Finding

The results of testing the second hypothesis, presented in Table 4, indicate that there was a significant difference between the level of media competency perceived by teacher

TABLE 9

THE NUMBER AND PERCENT OF TEACHER GRADUATES WHO HAD TO LEARN
SPECIFIC MEDIA COMPETENCIES AFTER THEY BEGAN TEACHING

Media Competency Which Had To Be Learned After Teaching Began	% of group	# of group
PREPARATION AND USE OF PHYSICAL FACILITIES		
1. Set up and operate at least one kind of 16mm motion picture for classroom use	2	2
2. Set up and operate at least one kind of 35mm filmstrip projector for classroom use	5	6
3. Set up and operate at least one kind of 35mm slide projector for classroom use	3	4
4. Set up and operate an overhead projector for classroom use	6	7
5. Set up and operate an opaque projector	6	7
6. Operate such audio equipment as record players and tape recorders	1	1
7. Arrange and operate a television receiver for classroom use	4	5
8. Operate a spirit duplicator or mimeograph to produce printed materials	23*	28
9. Perform simple maintenance on projection equipment, such as replacing lamps and cleaning lenses	4	5
PRODUCTION OF MATERIALS		
10. Design and construct appropriate display devices, such as bulletin boards, feltboards, and exhibits	7	8
11. Design and produce overhead transparencies using a thermofax	7	8
12. Design and produce overhead transparencies using the diazo (ammonia) process	2	2
13. Design and prepare handmade overhead transparencies, using marking pens, pencils, adhesive film, and the like	7	8
14. Use mechanical letter guides, such as a Vtrico Set	0	0
15. Mount graphic and pictorial materials, using some kind of cement or dry mount tissue	1	1
16. Construct models, build dioramas, or work with papier-mache	3	4
17. Make an audio tape recording of one voice or source, using a microphone	1	1
18. Make an audio tape recording by dubbing from noncopyright records and/or tapes	6	7
19. Plan and produce slide-tape sequences for instructional presentations	3	4
20. Write, edit, and evaluate programmed instruction sequences	4	5
21. Determine when local production would have inherent educational value, whether or not commercially prepared materials might be available	7	8
SELECTION AND EVALUATION OF MEDIA		
22. Specify in behavioral terms the learning task for which a medium (filmstrip, record, etc.) is to be used	9	11
23. Store and maintain a personal file of audiovisual materials for teaching	12*	14
24. Recall several services a teacher could expect from a media center and its personnel	9	11
25. Locate and acquire materials from one or more sources of free materials	11*	13
26. Locate and acquire materials from sources available at the State level	15*	18
27. Locate and acquire materials from sources available at the local school district level	18*	22
28. Recall unique characteristics of various media	10*	12
29. Explain the various roles media play in the instructional process, for example, record instruction, extend the teacher, etc.	8	10
30. Select media for specific purposes and learners on the basis of principles derived from learning and communication theories	12*	14
31. Recall results of research studies which have implications for using media in teaching	1	1
UTILIZATION OF MEDIA		
32. Incorporate media into the "flow" of a lesson	14*	17
33. Introduce media presentations effectively	17*	20
34. Follow-up media presentations effectively	18*	22
35. Use media in complementary combinations	17*	20
36. Try out and test variations in the use of media	14*	17
37. Design and arrange the learning space to support the most effective use of media	18*	22
38. Adopt techniques of media usage to facilitate the use of media with learning groups of various sizes	15*	18
39. Overcome media limitations through appropriate methodology and editing and restruc- turing the media itself	11*	13
40. Guide students in the selection, production, and use of media for their own purposes	21*	25
41. Evaluate the effectiveness of the use of media and teaching	16*	19

*Ten percent (10%) or more of the total group

graduates who had a formal media course as part of their teacher education program and the level of media competency perceived by teacher graduates who did not have a formal media course as part of their teacher education program. The results indicate that those teachers who had the formal media course showed a significantly higher level of media competency than those who did not have a formal media course ($\bar{X}_1 = 174.67$, $\bar{X}_2 = 160.35$). In an attempt to cite specific areas of difference, the researcher compared the two groups' competency scores on each of the four sub-areas of the Data Collection Instrument. The percentage of teacher graduates from each group who felt that they could perform the tasks indicated were compared. The means and standard deviations computed for each group's percentages on all four sub-areas are presented in Table 10. These data indicate that the teacher graduates who had a formal media course were much more proficient than those who had not had a formal course in the areas of Selection and Evaluation of Media and the Utilization of Media. Very few of the teacher graduates who had not had formal media courses felt that they could utilize media effectively in the classroom, but most teacher graduates who had formal media courses felt quite capable of doing so.

Third Ancillary Finding

Table 5 indicates that there was a significant difference between the perceived level of training for media competency

TABLE 10

A COMPARISON OF THE MEDIA COMPETENCY PERCENTAGES OF TEACHERS WHO HAD HAD
A FORMAL MEDIA COURSE AND THE MEDIA COMPETENCY PERCENTAGES OF
TEACHERS WHO HAD NOT HAD A FORMAL MEDIA COURSE

Area of Media Competency	Teachers who had a formal media course		Teachers who did not have a formal media course		Calculated t-Value	Significance Level
	Mean	Standard Deviation	Mean	Standard Deviation		
Preparation and Use of Physical Facilities in the Use of Media	88.11	14.58	75.44	18.03	$t = 1.728$	$> .05$
Production of Media Materials for the Classroom	72.67	18.39	58.83	23.15	$t = 1.480$	$> .05$
Selection and Evalu- ation of Media Materials	84.20	10.70	70.60	9.32	$t = 3.031$	$< .01$
Utilization of Media in the Classroom	87.70	6.34	66.60	7.81	$t = 6.633$	$< .001$

of teacher graduates who had a formal media course as part of their teacher education program and the perceived level of training for media competency of teacher graduates who did not have a formal media course as part of their teacher education program. The results indicate that those teachers who had a formal course perceived a higher level of media training than those who did not take such a course ($\bar{X}_1 = 68.76$, $\bar{X}_2 = 59.92$).

In an attempt to cite specific areas of difference, the researcher compared the two groups' level-of-media-training scores on each of the four sub-areas of the Media Competency Checklist. The percentage of teacher graduates from each group who felt that they had received training for the tasks indicated on the checklist were compared. The means and standard deviations computed for each group's percentages on all four sub-areas are presented in Table 11.

The data presented in Table 11 indicate that the teacher graduates who had a formal media course felt that they had received much more training in the areas of Evaluation and Selection of Media and the Utilization of Media in the classroom. These results tend to support the results presented in Table 10 indicating that teachers who have had formal media courses as part of their teacher education feel that they were better trained at the time they were in their teacher education program and they feel that they are more competent in the utilization of media at the present time.

TABLE 11

A COMPARISON OF THE LEVEL OF TRAINING (FOR MEDIA COMPETENCY) PERCENTAGES
OF TEACHERS WHO HAD HAD A FORMAL MEDIA COURSE AND THE LEVEL OF
TRAINING (FOR MEDIA COMPETENCY) PERCENTAGES OF TEACHERS
WHO HAD NOT HAD A FORMAL MEDIA COURSE

Area of Media Competency	Teachers who had a formal media course		Teachers who did not have a formal media course		Calculated t-Value	Significance Level
	Mean	Standard Deviation	Mean	Standard Deviation		
Preparation and Use of Physical Facilities in the Use of Media	79.78	23.18	65.89	27.51	t = 1.221	> .05
Production of Media Materials for the Classroom	54.25	24.76	33.00	15.01	t = 2.321	< .05
Selection and Evalu- ation of Media Materials	71.50	13.83	46.10	8.79	t = 4.902	< .01
Utilization of Media in the Classroom	69.40	14.93	44.40	12.58	t = 4.049	< .01

Fourth Ancillary Finding

The results of testing the fourth hypothesis, presented in Table 6, indicate that there was not a significant difference between the level of media competency perceived by OU's teacher graduates who had an automated educational media course and the level of media competency perceived by teacher graduates from other State institutions who did not have an automated educational media course as part of their teacher education program.

In an attempt to cite specific areas of difference, the researcher compared the two groups' competency level scores on each of the four sub-areas of the Media Competency Checklist. The percentage of teacher graduates from each group who felt that they could perform the tasks indicated were compared. The means, standard deviations, and calculated t values are shown in Table 12.

The data presented in Table 12 indicate that the OU teachers who had had an automated educational media course felt that they had a higher level of media competency than teachers from nine other State education institutions on the sub-area of Utilization of Media. However, the overall differences between the two groups were not significant.

The results presented in Table 12 should be compared and interpreted in conjunction with the results presented in Table 13. Such a comparison clarifies the results of each table.

TABLE 12

A COMPARISON OF THE MEDIA COMPETENCY PERCENTAGES OF OU TEACHER GRADUATES WHO HAD HAD AN AUTOMATED EDUCATIONAL MEDIA COURSE AND THE MEDIA COMPETENCY PERCENTAGES OF TEACHER GRADUATES FROM NINE OTHER STATE EDUCATION INSTITUTIONS

Area of Media Competency	OU teachers who had an automated media course		Other teachers who did not have an automated media course		Calculated t-Value	Significance Level
	Mean	Standard Deviation	Mean	Standard Deviation		
Preparation and Use of Physical Facilities in the Use of Media	90.33	18.65	76.67	16.70	$t = 1.726$	$> .05$
Production of Media Materials for the Classroom	74.17	18.93	61.83	23.17	$t = 1.304$	$> .05$
Selection and Evaluation of Media Materials	86.60	9.36	79.90	10.04	$t = 1.544$	$> .05$
Utilization of Media in the Classroom	87.40	4.77	72.50	7.56	$t = 5.271$	$< .001$

Fifth Ancillary Finding

The results of testing the fifth hypotheses, presented in Table 7, indicate that there was not a significant difference between the level of training for media competency perceived by OU's teacher graduates who had an automated educational media course and the level of training for media competency perceived by teacher graduates from nine other State education institutions who did not have an automated educational media course as part of their teacher education program.

In an attempt to cite any differences which might have existed between the two groups, the researcher compared their level-of-training (for media competency) scores on each of the four sub-areas of the Media Competency Checklist. The means, standard deviations, and calculated t values are shown in Table 13.

The data presented in Table 13 indicate that the OU teachers who had an automated educational media course felt that the level of training for media competency which they had received was slightly higher than that received by teachers from nine other State education institutions on the sub-areas of Selection and Evaluation of Media and the Utilization of Media. However, the overall differences between the two groups were not significant.

These results are explained further in the conclusions stated in Chapter V.

TABLE 13

A COMPARISON OF THE LEVEL OF TRAINING (FOR MEDIA COMPETENCY) PERCENTAGES OF OU
TEACHERS WHO HAD HAD AN AUTOMATED EDUCATIONAL MEDIA COURSE AND THE
LEVEL OF TRAINING (FOR MEDIA COMPETENCY) PERCENTAGES OF TEACHERS
FROM NINE OTHER STATE EDUCATION INSTITUTIONS

Area of Media Competency	OU teachers who had an <i>automated</i> media course		Other teachers who did not have an <i>automated</i> media course		Calculated t-Value	Significance Level
	Mean	Standard Deviation	Mean	Standard Deviation		
Preparation and Use of Physical Facilities in the Use of Media	80.11	25.16	68.22	23.41	$t = 1.094$	$> .05$
Production of Media Materials for the Classroom	51.42	26.31	43.17	18.07	$t = 0.817$	$> .05$
Selection and Evalu- ation of Media Materials	71.70	15.25	56.70	12.72	$t = 2.389$	$< .05$
Utilization of Media in the Classroom	72.80	16.59	55.70	13.16	$t = 2.554$	$< .05$

Summary of Results

The results obtained in testing the five hypotheses and the results of the ancillary findings may be summarized with a few general statements. The conclusions drawn from these results are presented in Chapter V.

Results of testing the first hypothesis indicated that the teacher graduates felt that they were significantly more competent in media than they were at the time they received their media training. Further analysis of these results showed this to be true especially in the areas of Selection and Evaluation of Media and the Utilization of Media. It was also determined that the teacher graduates had to develop many competencies after they started teaching, since their teacher education program had failed to provide sufficient media training in some areas. These results are elaborated further in the conclusions.

Results of testing the second hypothesis indicated that those teachers who had a formal media course as part of their teacher education program possessed a significantly higher level of media competency than those who did not have a formal media course as part of their teacher education program. Further analyses of the data related to hypothesis two showed that this was especially true on the two competency sub-areas of Selection and Evaluation of Media and the Utilization of Media.

Results of testing the third null hypothesis showed

that those teachers who had a formal media course as part of their teacher education program felt that they received a significantly higher level of media competency training than those teachers who did not have a formal media course as part of their teacher education program. Further analysis of the data related to hypothesis three showed that this was especially true on the two competency sub-areas of Selection and Evaluation of Media and the Utilization of Media. These data tend to support the findings of the second hypothesis.

Results of testing the fourth null hypothesis showed that the OU teacher graduates who had an automated educational media course as part of their teacher education program had media competency scores comparable to the media competency scores of teachers from nine other State education institutions who had not had an automated educational media course as part of their teacher education program. Further analyses of the data related to the fourth null hypothesis indicated that the only competency sub-area which showed any appreciable difference was the area of the Utilization of Media.

Results of testing the fifth null hypothesis showed that the OU teacher graduates who had an automated educational media course felt that the level of training for media competency which they had received through their teacher education program was quite similar to the level of

training for media competency which teachers from nine other State education institutions felt that they had received through their teacher education programs. Further analyses of the data related to the fifth hypothesis indicated that the two groups showed differences on only two competency sub-areas. These two areas were the Selection and Evaluation of Media and the Utilization of Media.

It was generally found that those teacher graduates who had taken a formal media course as part of their teacher education program showed a much higher level of media competency and a much higher level of training for media competency than those teacher graduates who did not have a formal media course in their teacher education program. This was especially true in the media competency sub-areas of Selection and Evaluation of Media and the Utilization of Media.

The conclusions drawn from these results are presented in Chapter V. Chapter V also contains a cogent summary of the entire study, implications for further research in the area of educational media, and concluding remarks.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER RESEARCH

The overall problem of the present study was to compare the level of training for media competency which a group of (N=212) Oklahoma teachers received through their teacher education program with the level of competency they perceived to possess after they had been teaching for a short period of time in public school systems.

The study was conducted as an exploratory field study in which the researcher investigated the differences among teacher graduates' perceptions of their media competency and the level of training for these competencies which they felt they had received in the training programs of Oklahoma's Teacher Education Institutions. A total of three hundred (N=300) first-year teacher graduates were asked to respond to a forty-one item data collection instrument which had been developed in an earlier study. Two mailings of the questionnaire, two follow-up letters, and an intensive telephone campaign produced two-hundred twelve (N=212) usable responses. Four groups of thirty teachers each were randomly selected from the number of usable responses. The responses made by these four groups were compared with a t test in order to test five null hypotheses which had been stated

earlier. Several ancillary findings were also reported as a means of clarifying the overall results of the study.

Summary of Findings

Results of testing the first hypothesis indicated that all teacher graduates felt that they were significantly more competent in media than they were at the time they received their media training, especially in the areas of Selection and Evaluation of Media and the Utilization of Media. It was also determined that teachers had to develop many media competencies after they started teaching, since their teacher education program had failed to provide sufficient media training in some areas.

Results of testing the second and third hypotheses showed that those teachers who had a formal media course as part of their teacher education program possessed a significantly higher level of media competency and a significantly higher level of training for media competency than those teachers who did not have such a course.

Results of testing the fourth and fifth hypotheses showed that there were no significant differences between the level of media competency and the level of training for media competency possessed by OU teacher graduates who had an automated educational media course as part of their teacher education program and teachers from nine other State education institutions who had not had such a course during their teacher education program.

Conclusions

The results and findings of this study have allowed the researcher to state a number of conclusions. This section contains a statement and an elaboration of each conclusion.

Conclusion #1. Oklahoma teachers felt that they were more competent in media after a short period of in-service teaching in public schools than they were at the time they received their media training.

This conclusion is based on the results of testing Hypothesis Number One and the First Ancillary finding. The findings which support this conclusion supplement the conclusions drawn by Streeter¹ and Kennard.² They concluded that a high level of media competency can be acquired by some means other than through a teacher training program. In the present study there was no attempt to determine the way these competencies were acquired, but there was indication from the findings of this study that a large number of teachers, especially teachers who had not had a formal media course, had to acquire media competencies after they started teaching in the classroom. This finding, shown in Table 8, is also similar to the results reported by de Kieffer's.³

¹Streeter, "A Study of Relationships."

²Kennard, "Media Competencies of Teachers."

³de Kieffer, Media Milestones.

The only area in which teachers felt that they had received a high level of media training was in the area of Preparation and Use of Physical Facilities.

Conclusion #2. Teachers who had had a formal media course as part of their teacher education program perceived themselves as being more competent in media than those teachers who had not had such a course as part of their teacher education program.

The above conclusion, based on the results of testing Hypothesis Number Two and the Second Ancillary finding, tend to support the results of a number of previous studies. Specifically, studies by Oliver,⁴ Streeter,⁵ and Brookens⁶ showed that a formal media course will results in a higher level of media competency for its participants. This conclusion, however, is contrary to the conclusions made by Benda⁷ and Kennard.⁸ It was found that Oklahoma teachers who had had a media course felt that they were more competent in the areas of Selection and Evaluation of Media and Utilization of Media than those teachers who had not had such a course. Kennard found that the highest level of competency for teachers who had had a media course to be in the

⁴Oliver, "A Study of Pre-Service Teacher Education."

⁵Streeter, "A Study of Relationships."

⁶Brookens, "An Exploratory Study."

⁷Benda, "A Plan for Improvement."

⁸Kennard, "Media Competencies of Teachers."

area of Preparation and Use of Physical Facilities.⁹ Results of the present study tend to support Kennard's findings. Even though teachers who had had a media course reported this to be their highest level of competency, the findings of this study show that the greatest difference between levels of competency of teachers who had had a media course and those who had not had a course to be in the area of Utilization of Media. (See Table 10)

Conclusion #3. There are strong indications that teachers who have had a formal course in media will feel better trained to use media in their in-service teaching than teachers who have not had such a media course.

The above conclusion, based on the results of testing Hypothesis Number Three and the Third Ancillary finding, tend to support the recommendations of studies conducted by Lawrence,¹⁰ Zimmerman,¹¹ and King.¹² These three researchers recommended that teacher education programs be strengthened by requiring a formal media course as a means for acquiring media competency. This conclusion is also consistent with results reported by Oliver¹³ and Lasher.¹⁴

⁹ Ibid., p. 71.

¹⁰ Lawrence, "Development of a Model Media Course."

¹¹ Zimmerman, "An Evaluation of AV Experiences."

¹² King, Kenneth, "An Evaluation of Teacher Utilization."

¹³ Oliver, "A Study of Pre-Service Teacher Education."

¹⁴ Lasher, "Educational Media Attitude."

They also concluded that a course in media will propagate a positive attitude toward the use of media in teaching. The converse of this conclusion implies that teachers who feel that they have acquired a high level of media training will have a more favorable attitude toward the use of media.

Conclusion #4. There was very little difference between the perceived media competency of teachers who had had an automated self-instructional media course and those who had not had such a course during their teacher education program.

The above conclusion is based on the results of testing Hypothesis Number Four and the Fourth Ancillary finding. This conclusion tends to support the findings of Curl,¹⁵ Torkelson,¹⁶ and Paschall.¹⁷ They concluded that self-instructional media programs can be an effective method for training classroom teachers for a high level of media competency. Even though, the findings of the present study showed no significant difference between the two groups, there was some indication that teachers who had had the automated media course at the University of Oklahoma perceived themselves to have a higher level of competency in the area of Utilization of Media than those teachers who (See Table 12). It is of particular importance to note that

¹⁵Curl, "Self-Instructional Laboratories."

¹⁶Torkelson, An Experimental Study.

¹⁷Paschall, "Effectiveness of Two Instructional Systems."

it was in the area of media utilization (shown in Table 9) that teachers in all subgroups reported to have received the least training and felt the least competent. This finding should be of particular importance to teacher education institutions. In such instances, there is a strong implication that the automated media course at the University of Oklahoma can be used as an adequate means of training teachers for a high level of competency in the area of Utilization of Media.

Conclusion #5. There was very little difference between the level of training in media as perceived by teachers who had had an automated self-instructional media course and those who had not had such a course during their teacher education program.

The above conclusion was based on the results of testing Hypothesis Number Five and the Fifth Ancillary finding. This conclusion is consistent with the results reported by Curl,¹⁸ Paschall,¹⁹ and Tipling.²⁰ These three researchers concluded that teachers who had received media training through an automated self-instructional course had equally favorable attitudes toward their media course as teachers who were taught by conventional methods.

¹⁸ Curl, "Self-Instructional Laboratories."

¹⁹ Paschall, "Effectiveness of Two Instructional Systems."

²⁰ Tipling, "Evaluation of the Effects."

Even though a significant difference was not found between the two groups in the present study, there were some indications that the University of Oklahoma teacher graduates who had had the automated media course perceived that they had a higher level of training in the areas of Selection and Evaluation of Media and Utilization (See Table 13). It was also in these two areas of media competency that teachers in all groups felt that they had received the least amount of training (shown in Table 13). Such a finding would imply that the automated media course at the University of Oklahoma has proven itself to be an adequate method for training teachers in media, particularly in certain subareas.

Implications For Further Research

It is apparent that this study was limited in scope to include only ten selected teacher education institutions in the State of Oklahoma and a sample of the teacher graduates from these institutions who are presently teaching in the State's public schools. Further studies are needed before the results obtained in the present study can be generalized to other populations of first-year teachers. Since the results of this study showed a difference between the training for media competency and the perceived competency in media, similar studies could be conducted by selecting teachers who are nearing completion of their

teacher education program to complete the Media Competency Survey Questionnaire. The selected subjects could be tested again after having taught for different periods of time to determine if there was a change in media competency levels.

Since the present study showed a discrepancy between the teachers' perceived level of media competency and the perceived level of training for media competency, a study could be conducted in an attempt to discover those variables which relate to this discrepancy.

No attempt was made in this study to examine the relationship between the availability of media and the utilization of media in teaching. Further studies could be conducted to investigate the variables of availability and utilization of media in relationship to the teacher's perceived competency in media.

Finally, the findings of this study indicated two areas in which teachers felt less competent and received less media training than others. These two areas were the area of Selection and Evaluation of Media and Utilization of Media. Studies could be conducted in an attempt to develop techniques and materials which would insure a higher level of training for media competencies in each of these areas utilizing self-instructional as well as conventional teaching methods.

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APPENDIX A
DATA COLLECTING INSTRUMENT

APPENDIX A

**Media
Competency
Survey**

APPENDIX A (Cont'd)

INSTRUCTIONS:

You are asked to complete the three parts of this survey. All responses are to be made on the enclosed Response Sheet. After you have completed all sections, return ONLY the response sheet in the enclosed stamped envelope as soon as possible.

SECTION I.

Please complete this section found on the first page of the response sheet which solicits personal and professional data about you.

SECTION II.

The MEDIA COMPETENCY SURVEY is included in the following pages of this booklet. The items of the survey describe some of the things teachers do as they use educational media, or audiovisual materials or equipment. Before each item are five numbered spaces, each of which indicates a way in which you might judge yourself as being able to do or not do the task specified in the item. The meaning of each number on the scale is reproduced below and while the meaning remains the same throughout, also appears at the top of each page of the checklist for convenient reference.

- (A) I definitely CAN NOT do this and probably will never need to.
- (B) I definitely CAN NOT do this.
- (C) I definitely CAN do this, but learned after I started teaching.
- (D) I definitely CAN do this, but only after review/ and/or practice.
- (E) I definitely CAN do this.

SECTION III.

The TRAINING FOR MEDIA COMPETENCY SURVEY is included in the following pages of this booklet. Each item describes a learning experience in educational media which you may or may not have had as a part of your course work at your teacher training institution. Please consider your entire teacher education program. Answer yes or no to each of the items.

Be as objective as possible as you determine those competencies which you acquired at your institution. Remember that your individual responses are not to be evaluated in any way. Check only one answer for each item. Place your answers on the RESPONSE SHEET.

APPENDIX A (Cont'd)

RESPONSE SHEET

PLEASE Mark all the answers for each section of the survey on this sheet. When you have completed the survey, return this sheet in the self-addressed envelope. THANK YOU FOR YOUR HELP.

SECTION I. PROFESSIONAL INFORMATION

1. Institution from which you graduated _____
2. Date of graduation _____
3. Degree _____
4. Certified to teach _____ (grade level) _____ (subject)
5. Date began teaching _____
6. Now teaching _____ (grade level) _____ (subject)
7. In your teacher training program, did you take a formal course in educational media or audiovisual? Yes () No ()
 - a. If you did have a course.
 - (1) Was it required? Yes () No ()
 - (2) What was the course title? _____
 - (3) Did you have more than one course? Yes () No ()
 - (4) Did the course consist of more than equipment operation? Yes () No ()
 - (5) Was it an automated self-instructional course? Yes () No ()
 - b. If you did not have a course,
 - (1) Was a course available, to your Knowledge? Yes () No ()
 - (2) Which of the below provided you with some knowledge of/and skills in audiovisual? (If more than one is applicable, rank in decending order - most 1, next 2, etc.)
 - () General education course (s)
 - () Methods course (s)
 - () Course (s) in major field
 - () Practice teaching
 - () Self-instructional laboratory
 - () Observation of college teachers
 - () Observation of public school teachers
 - () OTHER _____
8. When did you receive media proficiency? _____ (Year)
 - a. Did you receive media proficiency from taking a media course? Yes () No ()
 - b. If you did not receive proficiency by a media course, explain how you received it.

APPENDIX A (Cont'd)

SECTION II. MEDIA COMPETENCY SURVEY

Mark each item for the MEDIA COMPETENCY SURVEY found on pages 3 and 4 in the booklet. Mark only one numbered space for each item and be sure each item on the response sheet properly corresponds with the item in the booklet.

1.0 PREPARATION AND USE OF PHYSICAL FACILITIES

- 1.1 A () B () C () D () E ()
 1.2 A () B () C () D () E ()
 1.3 A () B () C () D () E ()
 1.4 A () B () C () D () E ()
 1.5 A () B () C () D () E ()
 1.6 A () B () C () D () E ()
 1.7 A () B () C () D () E ()
 1.8 A () B () C () D () E ()
 1.9 A () B () C () D () E ()

2.0 PRODUCTION OF MATERIALS

- 2.1 A () B () C () D () E ()
 2.2 A () B () C () D () E ()
 2.3 A () B () C () D () E ()
 2.4 A () B () C () D () E ()
 2.5 A () B () C () D () E ()
 2.6 A () B () C () D () E ()
 2.7 A () B () C () D () E ()
 2.8 A () B () C () D () E ()
 2.9 A () B () C () D () E ()
 2.10 A () B () C () D () E ()
 2.11 A () B () C () D () E ()
 2.12 A () B () C () D () E ()

3.0 SELECTION AND EVALUATION OF MEDIA

- 3.1 A () B () C () D () E ()
 3.2 A () B () C () D () E ()
 3.3 A () B () C () D () E ()
 3.4 A () B () C () D () E ()
 3.5 A () B () C () D () E ()
 3.6 A () B () C () D () E ()
 3.7 A () B () C () D () E ()
 3.8 A () B () C () D () E ()
 3.9 A () B () C () D () E ()
 3.10 A () B () C () D () E ()

4.0 UTILIZATION OF MEDIA

- 4.1 A () B () C () D () E ()
 4.2 A () B () C () D () E ()
 4.3 A () B () C () D () E ()
 4.4 A () B () C () D () E ()
 4.5 A () B () C () D () E ()
 4.6 A () B () C () D () E ()
 4.7 A () B () C () D () E ()
 4.8 A () B () C () D () E ()
 4.9 A () B () C () D () E ()
 4.10 A () B () C () D () E ()

SECTION III. TRAINING FOR MEDIA COMPETENCY SURVEY

Mark each item for the TRAINING FOR MEDIA COMPETENCY SURVEY found on pages 5 and 6 in the booklet. Answer YES or NO for each of the items and be sure that each item on the response sheet properly corresponds with the item in the booklet.

1. YES () NO ()
 2. YES () NO ()
 3. YES () NO ()
 4. YES () NO ()
 5. YES () NO ()
 6. YES () NO ()
 7. YES () NO ()
 8. YES () NO ()
 9. YES () NO ()
 10. YES () NO ()
 11. YES () NO ()
 12. YES () NO ()
 13. YES () NO ()
 14. YES () NO ()
 15. YES () NO ()
 16. YES () NO ()
 17. YES () NO ()
 18. YES () NO ()
 19. YES () NO ()
 20. YES () NO ()
 21. YES () NO ()
 22. YES () NO ()
 23. YES () NO ()
 24. YES () NO ()
 25. YES () NO ()
 26. YES () NO ()
 27. YES () NO ()
 28. YES () NO ()
 29. YES () NO ()
 30. YES () NO ()
 31. YES () NO ()
 32. YES () NO ()
 33. YES () NO ()
 34. YES () NO ()
 35. YES () NO ()
 36. YES () NO ()
 37. YES () NO ()
 38. YES () NO ()
 39. YES () NO ()
 40. YES () NO ()
 41. YES () NO ()

If you wish to receive a summary of the completed study, please list your name and address below.

APPENDIX A (Cont'd)

SECTION II. MEDIA COMPETENCY SURVEY

Using the scale below, check only one lettered space on your RESPONSE SHEET for each of the items on this and the following pages.

- (A) I definitely CAN NOT do this and probably will never need to.
- (B) I definitely CAN NOT do this.
- (C) I definitely CAN do this, but learned after I started teaching.
- (D) I definitely CAN do this, but after review and/or practice.
- (E) I definitely CAN do this.

1.0 PREPARATION AND USE OF PHYSICAL FACILITIES

- (A) (B) (C) (D) (E) 1.1 Set up and operate at least one kind of 16mm motion picture for classroom use.
- (A) (B) (C) (D) (E) 1.2 Set up and operate at least one kind of 35mm filmstrip projector for classroom use.
- (A) (B) (C) (D) (E) 1.3 Set up and operate at least one kind of 35mm slide projector for classroom use.
- (A) (B) (C) (D) (E) 1.4 Set up and operate an overhead projector for classroom use.
- (A) (B) (C) (D) (E) 1.5 Set up and operate an opaque projector.
- (A) (B) (C) (D) (E) 1.6 Operate such audio equipment as record players and tape recorders.
- (A) (B) (C) (D) (E) 1.7 Arrange and operate a television receiver for classroom use.
- (A) (B) (C) (D) (E) 1.8 Operate a spirit duplicator or mimeograph to produce printed materials.
- (A) (B) (C) (D) (E) 1.9 Perform simple maintenance on projection equipment, such as replacing lamps and cleaning lenses.

2.0 PRODUCTION OF MATERIALS

- (A) (B) (C) (D) (E) 2.1 Design and construct appropriate display devices, such as bulletin boards, feltboards, and exhibits.
- (A) (B) (C) (D) (E) 2.2 Design and produce overhead transparencies using the thermal heat process (Thermofax).
- (A) (B) (C) (D) (E) 2.3 Design and produce overhead transparencies using the diazo (ammonia) process.
- (A) (B) (C) (D) (E) 2.4 Design and prepare Handmade overhead transparencies, using marking pens, pencils, adhesive film, and the like.
- (A) (B) (C) (D) (E) 2.5 Use mechanical letter guides, such as a Wrico set.
- (A) (B) (C) (D) (E) 2.6 Mount graphic and pictorial materials, using some kind of cement or dry mount tissue.
- (A) (B) (C) (D) (E) 2.7 Construct models, or build dioramas, or work with papier-mache.
- (A) (B) (C) (D) (E) 2.8 Make an audio tape recording of one voice or source, using a microphone.
- (A) (B) (C) (D) (E) 2.9 Make an audio tape recording by dubbing from noncopyright records and/or tapes.
- (A) (B) (C) (D) (E) 2.10 Plan and produce slide-tape sequences for instructional presentations.
- (A) (B) (C) (D) (E) 2.11 Write, edit, and evaluate programmed instruction sequences.
- (A) (B) (C) (D) (E) 2.12 Determine when local production would have inherent education value, whether or not commercially prepared material might be available.

APPENDIX A (Cont'd)

- (A) I definitely CAN NOT do this and probably will never need to.
- (B) I definitely CAN NOT do this.
- (C) I definitely CAN do this, but learned after I started teaching.
- (D) I definitely CAN do this, but after review and/or practice.
- (E) I definitely CAN do this.

3.0 SELECTION AND EVALUATION OF MEDIA

- (A) (B) (C) (D) (E) 3.1 Specify in behavioral terms the learning task for which a medium (film-strip, record, etc.) is to be used.
- (A) (B) (C) (D) (E) 3.2 Store and maintain a personal file of audiovisual materials for teaching.
- (A) (B) (C) (D) (E) 3.3 Recall several services a teacher could expect from a media center and its personnel.
- (A) (B) (C) (D) (E) 3.4 Locate and acquire materials from one or more sources of free materials.
- (A) (B) (C) (D) (E) 3.5 Locate and acquire materials from sources available at the state level.
- (A) (B) (C) (D) (E) 3.6 Locate and acquire materials from sources available at the local school district level.
- (A) (B) (C) (D) (E) 3.7 Recall unique characteristics of various media.
- (A) (B) (C) (D) (E) 3.8 Explain the various roles media play in the instructional process, for example, record instruction, extend the teacher, etc.
- (A) (B) (C) (D) (E) 3.9 Select media for specific purposes and learners on the basis of principles derived from learning and communication theories.
- (A) (B) (C) (D) (E) 3.10 Recall results of research studies which have implication for using media in teaching.

4.0 UTILIZATION OF MEDIA

- (A) (B) (C) (D) (E) 4.1 Incorporate media into the "flow" of a lesson.
- (A) (B) (C) (D) (E) 4.2 Introduce media presentations effectively.
- (A) (B) (C) (D) (E) 4.3 Follow-up media presentations effectively.
- (A) (B) (C) (D) (E) 4.4 Use media in complementary combinations.
- (A) (B) (C) (D) (E) 4.5 Try out and test variations in the use of media.
- (A) (B) (C) (D) (E) 4.6 Design and arrange the learning space to support the most effective use of media.
- (A) (B) (C) (D) (E) 4.7 Adapt techniques of media usage to facilitate the use of media with learning groups of various sizes.
- (A) (B) (C) (D) (E) 4.8 Overcome media limitations through appropriate methodology and editing and restructuring the media itself.
- (A) (B) (C) (D) (E) 4.9 Guide students in the selection, production, and use of media for their own purposes.
- (A) (B) (C) (D) (E) 4.10 Evaluate the effectiveness of the use of media and teaching.

APPENDIX A (Cont'd)

SECTION III. TRAINING FOR MEDIA COMPETENCY SURVEY

Please indicate by checking yes or no on the RESPONSE SHEET if you had a learning experience in your teacher education as stated below. Please consider your entire teacher education course experience.

IN THE TEACHER EDUCATION PROGRAM AT MY INSTITUTION I HAD

A LEARNING EXPERIENCE IN

- | | |
|---|--------------------|
| setting up and operating at least one kind of 16mm motion picture projector for classroom use | 1. YES () NO () |
| setting up and operating at least one kind of 35mm filmstrip projector for classroom use | 2. YES () NO () |
| setting up and operating at least one kind of 35mm slide projector for classroom use | 3. YES () NO () |
| setting up and operating an overhead projector for classroom use | 4. YES () NO () |
| setting up and operating an opaque projector | 5. YES () NO () |
| operating such audio equipment as record players and tape recorders | 6. YES () NO () |
| arranging and operating a television receiver for classroom use | 7. YES () NO () |
| operating a spirit duplicator or mimeograph to produce printed material | 8. YES () NO () |
| performing simple maintenance on projection equipment, such as replacing lamps and cleaning lenses | 9. YES () NO () |
| designing and constructing appropriate display devices, such as bulletin boards, feltboards, and exhibits | 10. YES () NO () |
| designing and producing overhead transparencies using the thermal heat process (Thermofax) | 11. YES () NO () |
| designing and producing overhead transparencies using the diazo (ammonia) process | 12. YES () NO () |
| designing and preparing handmade overhead transparencies using marking pens, pencils, adhesive film, etc. | 13. YES () NO () |
| using mechanical lettering guides, such as a Wrico set | 14. YES () NO () |
| mounting graphic and pictorial materials, using some kind of cement or dry mount tissue | 15. YES () NO () |
| constructing models, or building dioramas, or work with paper-mache | 16. YES () NO () |
| making an audio tape recording of one voice or source, using a microphone | 17. YES () NO () |
| making an audio tape recording by dubbing from non-copyright records and/or tapes | 18. YES () NO () |
| planning and producing slide-tape sequences for instructional presentations | 19. YES () NO () |
| writing, editing, and evaluating programmed instruction sequences | 20. YES () NO () |
| determining when local production would have inherent educational value, whether or not commercially prepared material might be available | 21. YES () NO () |
| specifying in behavioral terms the learning task for which a medium (filmstrip, record) is to be used | 22. YES () NO () |
| maintaining and storing a personal file of audiovisual materials for teaching | 23. YES () NO () |
| identifying the several services a teacher could expect from a media center and its personnel | 24. YES () NO () |
| locating and acquiring materials from one or more sources of free materials | 25. YES () NO () |
| locating and acquiring materials from sources available at the state level | 26. YES () NO () |
| locating and acquiring materials from sources available at the local level | 27. YES () NO () |
| identifying the unique characteristics of various media | 28. YES () NO () |
| explaining the various roles media play in the instructional process | 29. YES () NO () |
| selecting media for specific purposes and learners on the basis of principles derived from learning and communication theories | 30. YES () NO () |

APPENDIX A (Cont'd)

IN THE TEACHER EDUCATION PROGRAM AT MY INSTITUTION I HAD

A LEARNING EXPERIENCE IN

- Identifying the results of research studies which have implication for
- using media in teaching 31. YES () NO ()
 - incorporating media into the "flow" of a lesson 32. YES () NO ()
 - introducing media presentations effectively 33. YES () NO ()
 - following-up media presentations effectively 34. YES () NO ()
 - using media in complementary combinations 35. YES () NO ()
 - trying out and testing variations in the use of media 36. YES () NO ()
 - designing and arranging the learning space to support the most effective use of media 37. YES () NO ()
 - adapting techniques of media usage to facilitate the use of media with learning groups of various sizes 38. YES () NO ()
 - identifying techniques for overcoming media limitations through appropriate methodology and editing and reconstructing the medium itself 39. YES () NO ()
 - methods for guiding students in the selection, production, and use of media for their own purposes 40. YES () NO ()
 - evaluating the effectiveness of the use of media in teaching 41. YES () NO ()

NOTE: Be sure you marked only one number space for each item on the RESPONSE SHEET.

Be sure you evaluated your learning experiences in media as honestly and objectively as possible.

THANK YOU FOR YOUR HELP

APPENDIX B
QUESTIONNAIRE COVER LETTER

APPENDIX B

P. O. Box 1166
Norman, Oklahoma

Dear Teacher:

Recently, the State Department of Education required media proficiency as a part of the certification program for prospective teachers. As a recent graduate, you can be helpful to a research project which attempts to identify the kinds of media training which prospective teachers are receiving in Oklahoma teacher training institutions. Would you please take 20-30 minutes from your busy schedule to aid in this research project by completing the survey included on the following pages.

Data received from individual teachers will be strictly confidential. You will not be identified as an individual; your individual responses will not be analyzed; nor will you be judged in any way on the basis of your response.

Thank you very much for participating in this survey which is being conducted as part of a doctoral dissertation. Should you be interested in the completed study and wish to receive a summary when it is completed, please indicate in the space provided on the response sheet.

Thank you for your help.

Sincerely,

Marge Ford

APPENDIX C
FIRST FOLLOW-UP LETTER

APPENDIX C

P. O. Box 1166
Norman, Okla. 73069
February 17, 1974

Dear Colleague:

The first of this month, I mailed to you a MEDIA COMPETENCY SURVEY. It is important that I receive a sufficient number of responses for a valid study. You are one of a carefully selected sample and I am dependent on your response.

If you have not returned the survey response sheet, I would appreciate your time and efforts in completing the survey as soon as possible.

Thank you for your help.

Sincerely yours,

Marge Ford

APPENDIX D
SECOND FOLLOW-UP LETTER

APPENDIX D

P. O. Box 1166
Norman, Okla. 73069

Dear Colleague:

If you have not returned to me the response sheet to the MEDIA COMPETENCY SURVEY which I sent to you several weeks ago, I hope that you will do so as soon as possible. I can not complete my study until I have received an adequate number of responses.

If for some reason you have misplaced the MEDIA COMPETENCY SURVEY, I will be happy to send to you another copy. Please call me collect, 405-329-1441 and I will mail you a copy.

I appreciate your help very much. Thank you.

Sincerely,

Marge Ford

APPENDIX E
DATA CARD FORMAT

APPENDIX E

Information	Range of Values	Column(s)
FIRST CARD		
1. Teachers' Group Number.	1-8	1
2. Teacher's Number Within the Group	01-30	2-3
3. Survey Test Number. . . .	1-2	4
4. Institution Number. . . .	1-9	5
5. Type of Teacher Education Program	1-2	6
6. IBM Card Number	1-2	7
7. Competency Ratings Concerning the Preparation and Use of Physical Facilities.	1-5	8-16
8. Competency Ratings Concerning the Production of Materials.	1-5	17-28
9. Competency Ratings Concerning the Selection and Evaluation of Media	1-5	29-38
10. Competency Ratings Concerning the Utilization of Media.	1-5	39-48

SECOND CARD		
1. Teacher's Group Number.	1-8	1
2. Teacher's Number Within the Group	01-30	2-3
3. Survey Test Number. . . .	1-2	4
4. Institution Number. . . .	1-9	5
5. Type of Teacher Education Program	1-2	6

APPENDIX E (Cont'd)

6. IBM Card Number	1-2	7
7. Level of Competency Training for the Preparation and Use of Physical Facilities.	1-5	8-16
8. Level of Competency Training for the Production of Materials.	1-5	17-28
9. Level of Competency Training for the Selection and Evaluation of Media	1-5	29-38
10. Level of Competency Training for the Utilization of Media.	1-5	39-48

NOTE: S's change by group. S 01 in Group 1 is the S 01 in Group 2. S 01 in Group 3 is the same S 01 in Group 4--Group 5 the same as 6 and Group 7 the same as 8.

APPENDIX E (Cont'd)

APPENDIX E (Cont'd)

TEST 1 GROUP 3

301122155455515555555555444455555554443553335334
302122155555533554444535533445555454445555444455
3031221222525152522525252255252555222555555555
3041221555555555552554555555555555555555555555
305122155555545555554552555544545544445444554444
306122111455513251151145411111255524121111141111
3071221554555432532554252221554555554555545525
3081221555555555555555555555555555555555555555
30912215555554555525554555545545554454555555545
310122145554515454151115121555555544515555444515
31112214455554555323551533555335335522533333233
312122145454513351144555411555555554454434541333
313122144445525555222255522255555222525444232254
314122122232521532244225424442453344323344433233
3151221444444242522225242222555555555555555455455
31612214332252525222225222242444244445555555555
31712214553355355223555534225232222423333334434
31812212225552525225155111455555555551555555555
31912214445555555525555522555555554552555555555
32012215555552544222223324442435555525454444455
321122155554555555254525542555455444445555445445
32212214444455555525245544455555535554555555555
323122155555415155454444441255554544525333424444
32412215545555345525242522242535553533544333335
325122143455535154254445433345524424444333333343
3261221454545154454424244224454455444454444.4243
32712215555554555515555554253555555554555555455
32812214235551555424255542455555554455544555335
329122122455525455242444412351544455515335442225
330122125242525252242122222244522524423452234223

APPENDIX E (Cont'd)

TEST I GROUP 5

501111155555555455252225521435555544544555544445
5021111455555455542522252445435555445454445444454
50311115555554545425225555555555275555555555555
504111145454525432252224444555455544545555333235
5051111555555255554545555545555555554555555555
506111144555525554255545545555554444525555554444
50711115555554545444244422244555544342444444443
508111155555525554452255552255555544445555444454
509111155555555555454545553543553344545555545445
5101111555555255544545444455555555455255555455455
5111111555555454544522244125454555425255555245545
512111144555525255252555454455555555455555444444
5131111455555254554545555525555555555525555555455
514111155555553455454525544545555555555445444444
515111144455525554452255522555555555555555555255
51611115555555555445544522255555555544555555555
517111155545525554254545454453553344443555544444
5181111554555254544544455545455545455455455445
51911114555452535525444542444454444242333332224
520111155554524442242244422422422344424444444224
52111114555552445525554552254555555444555555445
5221111455555254552525552545555545555455555555
523111155441514111131145512253533334515334433135
5241111545555255544525555555555555555555555555
525111144554545234255525454455444445225444422222
52611115455354545325245555555535335534555553433
5271111555555555525555555555555555555555555555
528111155455525555555455521555455455545554455555
5291111555554525222555422225555545445545444445
530111155554553542241145521445454543315333344555

APPENDIX E (Cont'd)

TEST I GROUP 7

70111215555555555554525452545332333335555555555335
702112145455512252252555222555533355555555553335
70311214443552325325233522233333333332333233233
704112155554523452252245212225522514215554552225
70511215555555455445555555455555555545555555445
7061121555555235551545455255555555554425555555455
7071121235235532522222555255555555555555535525555
70811214455553535223254555555555555555555555555
7091121555555435241115455411334333343433333144311
710112155555555555111135554455455554545555555555
711112144433525233252555322555355534425555454445
712112155533343354454455544555533343343333333333
713112145555545554455445554545355544425445554424
71411212555555525225222522245555555525555555225
715112155555523452422225222555533333353333333133
7161121455555252552222455441334333433223343433333
7171121555555535532525255115111555255155555115152
718112155455525452225445222445544544425444344444
7191121455445132533455552223333444343223333533233
720112144444425552244444242552455552445555454545
721112155555523152255555522255255555524535535555
722112155544523453242444224245555544525555554444
723112154455543122252225512533232332223333332223
724112133333533232232245524343333333323333333333
725112155555455254241444123333455544414444544133
726112155555525455222245122255554555255555344555
727112145552513253252555522255553355323333335533
728112155555552452255525555555554455425555555255
729112145555554452252245541545444444445555545445
7301121333331513231141155111122333333223333533225

APPENDIX E (Cont'd)

TEST II GROUP 2

20122111111121111222111221111111111121111111211
2022211112111211112121112221111111111111111111111
20322111111211111111111121111111111111111111111121
204221122211111211211122222221112222221221122222
20522111121112221121212122222211111222222122222
20622111111121111112121122212112211111111122111
20722111121112221121112122211211211111111211121
2082211111111111121111122221111111212111222222
2092211111111121121212122222112211121112122221
2102211111111111121221122222212212222122222222
211221111111121222212221222222122222222222222222
21222111111111112111222122222211111221111111112
21322111112212211111212121221221111112222112221
2142211111111111111111121211111112121111121111
21522111111122212222222211222112222121112222211
21622111221111111122211112221111112112112212221
21722111111121211212112222111111111111111111111
21822111111122221111121112211222111121111211122
2192211111112211111121211112111111121111111111
22022111111121111111122211111111111111111111111
2212211111111112112121112221111111222111111222
22222111121111112122221211221111111111111111111
2232211111112211111221112111211111112111111211
224221111111212111111211221122211121111122121
2252211111112221221211122211211111111222122221
2262211111112121222212222211111221121111111111
2272211111112111212121222111122211121222121221
228221111111121121112111112111111221111122111
229221111111112111212121221111122221111121221
2302211121111222111111111111111111111111111111111

APPENDIX E (Cont'd)

TEST II GROUP 4

'01222111111211212111112211111122221111121212
4022221111112211111121112122222221221111212111
40222212222222221222222222211111112111111111
404222111111111112111111111111111111111111111
405222111111211111211111111111111111111111111
406222112221122222222212222222222122222222222
407222111111122122111212211111111111111111111
408222111111111111111111111111111111111111111
40922211112112111212221112122122111211111222
410222111111121112122212222212111112111112211
411222111111111112222212211122122112211122222
41222211112222121222211222221212211111221122122
413222111111222122122222222211122221211122221
414222111111212122122212222212222122122222222
415222111112222122221222222211222111111111111
416222111111222222222222222222222222222222222
4172221111222122221211222221222222212211122222
418222111111221122222122221111111111211111211
419222111111212122111122111111111112111122221
420222111111222112221122211111111211111111111
4212221111212212222222222122222222222222222222
4222221111222111121212221122212221122211122121
423222111111212111121211122121111211221122221
424222111211122211212221222221111222222222222
4252221111111121121111121221112122111122221122
4262221111112122112222222222112222222222212222
4272221122121222112121212222221111122111122222
428222121211121211212121222211111122122211211
4292221222112121121211222211211111122112122221
43022212121212121222222222211122221122111122222

APPENDIX E (Cont'd)

TEST II GROUP 6

601211111111111111111212111212211111111111111111111
60221111111111111111121222121111211111111111111111211
60321111111111121222222221222111112211111111111111111
6042111111111122122122122212211121222211211122222222
6052111111111211112121112222111112111211111111111111
60621111111112112221222112222222221222122222222222222
607211111111121111112121222121111211211111111111211
6082111111111222211122212122111112112111111122211
60921111111112111111111122111111221111111111121121
610211111111121111111211112121111111211211111111111
6112111111111212121122212222211112112112121222122
612211111111111112111111221111111111111111111111111
613211111112122221112122222111111111111111111111111
61421111111112111112121121111111111111111111111211
6152111111111211211122212221121111111111111111211
616211111111112111122212221111222111111111211121
617211111211122211212211222112112111111111111211
618211111111121211212121222211112121121111122222
6192111111111222212122112221211221122122222222221
6202111111111211122222112221221222221121111221221
=2121111111212111111221122211211111122111111221
622211111111121111212111221111111111111111111111111
6232111112212221221221122221212221111221222221
=2421111111122211112121211112122211121111121121
6252111111211121121212121211211212111221111122122
626211111111121122212221222222222211121111121221
6272111
628211111111122111111111121111111211111111121111
62921111221112121121111222221111111221111112211
630211111121212122222212122222111212222222222222222

APPENDIX E (Cont'd)

TEST II GROUP 8

80121211111112212222222222212222211221111121222
80221211111112211112111222111122211111111111111
8032121111111221222222212222222222222222222222222
80421211111112212221222222222222222222221122222222
80521211111112212212112222122211121121111211222
806212111111122111212121221112111111111111111111
807212122222222222222222222111211111111221211111
808212111111122222222121222122222122221222122222
80921211112212222222222122222111122222111222222
810212111211121222222222221212222222211222222222
811212111121122222222222222222211122222222222222
8122121111222222222222112222111212221122222222222
81321211111112121221122111121221111121111211221
814212121111111212212222122222211122221112222221
815212111111122122222221222222222222212222222222
816212111111121222222221222222222222221222222222
817212111121122222222221122222222222222222222222
818212111111121211221212222122222122221111221212
819212111111122222222112222112122121221221222221
820212111111122212222211212211111111111111111111
8212121111111212122111111111121122221112212122121
822112111122122212222121222211211121222222222222
823212122222221222222222222222222222222222222222
8242121111221222222222112222222222212212222122222
82821211111112211221222122222211221112211122221
825212111111122222222221222212212222222222222222
826212111111122222222221222222222222222222222222
827212111112121122222221222212222211221121122222
8292121111111211222122122221111111111111111122221
8302121111221222222222122222222222222222222222222

APPENDIX F
OTHER TEACHER EDUCATION INSTITUTIONS
IN OKLAHOMA

APPENDIX F

OTHER TEACHER EDUCATION INSTITUTIONS
IN OKLAHOMA

1. Oklahoma State University
2. Central State University
3. Northwestern State College
4. Northeastern State College
5. Southeastern State College
6. Southwestern State College
7. Oklahoma Panhandle State College
8. Oklahoma College of Liberal Arts
9. Langston University