Factors Affecting Faculty Attitudes toward the Use of Instructional Media in Selected Public Colleges and Universities in Michigan

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FACTORS AFFECTING FACULTY ATTITUDES TOWARD THE USE OF INSTRUCTIONAL MEDIA IN SELECTED PUBLIC COLLEGES AND UNIVERSITIES IN MICHIGAN

by
Abdelgader Ali El Musrati

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Education
Department of Educational Leadership

Western Michigan University
Kalamazoo, Michigan
August 1986
FACTORS AFFECTING FACULTY ATTITUDES TOWARD THE USE OF INSTRUCTIONAL MEDIA IN SELECTED PUBLIC COLLEGES AND UNIVERSITIES IN MICHIGAN

Abdelgader Ali El Musrati, Ed.D.
Western Michigan University, 1986

The purpose of this study was to answer the following questions:

1. Do the attitudes of faculty members in institutions rated as having high quality media service programs differ from the attitudes of faculty members in institutions rated as having low quality media service programs in regard to the use of instructional media?

2. Do type of institution, subject field, academic rank, degree held, length of teaching experience, formal courses in educational media, and in-service training programs in instructional media uses affect faculty members' attitudes toward the use of instructional media?

The research population consisted of 6 media directors and 390 randomly selected faculty members from 6 institutions of higher education in Michigan: 2 two-year colleges, 2 four-year colleges, and 2 universities. Of the questionnaires distributed, 83.08% were returned. Two instruments were used to gather data: the Media Director Questionnaire and Faculty Questionnaire on the Use of Instructional Media.

Using one-way-analysis of variance, the investigator found a significant relationship between type of institutions and the attitudes of faculty members toward the use of instructional media. The
same was true of subject areas taught and academic rank. However, no significant relationship existed between degree held and faculty members' attitudes toward the use of instructional media.

Using the t test, the investigator found a congruence between media directors' ratings and the attitudes of faculty members toward the use of instructional media in two-year colleges and universities. There was no congruence regarding four-year colleges. There was congruence when all institutions were compared. Also, the investigator found a significant difference existed in the attitudes of faculty members in regard to the use of instructional media based on their teaching experience, formal courses taken in educational media, and participation in in-service media training programs.

Using the second category of Faculty Questionnaire on the Use of Instructional Media, the research hypotheses on type of institutions, subject areas taught, academic rank, and degree held were rejected. However, the research hypotheses on teaching experience, formal courses taken in educational media, and participation in in-service media training programs were accepted.
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Western Michigan University Ed.D. 1986

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ACKNOWLEDGMENTS

I would like to express my sincere thanks, much gratitude, and appreciation to many individuals for their belief in my abilities as a doctoral student and for their caring for me as an individual:

To my advisor and chairperson, Dr. Charles C. Warfield, for his guidance, encouragement, and support;

To Dr. David J. Cowden, Dr. Steven C. Rhodes, and Dr. William J. Armstrong, members of my committee, who gave excellent assistance in the development and writing of this dissertation. It has been a great privilege to have these experts serve as my dissertation committee members. They provided many helpful insights on the design of the study and the interpretation of the data;

To Dr. John Corbin and Mr. Archy Watson for their valuable assistance in collecting the data for this study;

To every individual of The Socialist People's Libyan Arab Jamahiriya for their encouragement and support for making my academic achievement possible. I want to assure them of my continued dedication to them at all times;

To my wife, Zenab, for her thoughtfulness, patience, encouragement, and support during this endeavor; to my children, Sabria, Mohammed, Sarah, and Suhila, who created a climate which made this research possible; and to my father, Ali, for his understanding and his positive support at all times;
To all of my Arab brothers for their constant support and help during this project;

To Mrs. Lee Pakko for the beautiful job she did typing the final drafts of my dissertation; and

Lastly, I would like to dedicate this work to the memory of my mother, Sabria, and to my father-in-law, Mohamed, who are not alive to share in my success.

Abdelgader Ali El Musrati
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CHAPTER I

BACKGROUND AND STATEMENT OF THE PROBLEM

Background of the Problem

One of the most important aspects of the new educational model is the emergence of new technology in the learning environment. In the school, these new technologies are altering not only the content but also the structure of the instructional programs. This new media utilization in both teaching and learning contributes and provides many opportunities for the learners to acquire a wide variety of experiences, not only in the classroom setting, but outside as well. Research studies by W. H. Allen (1971) and Moldstad (1974) have demonstrated that instructional media are valuable tools in the teaching-learning process. Thus, newer approaches to instructional development have been established based upon the availability of the educational technologies in colleges and universities. In this approach, considerable attention in the design of instruction is placed on the use of instructional media as an important element in the total instructional program and its effect on the learner.

Due to the basic nature of the teaching-learning process and the technologies involved, many universities and colleges have established educational media service programs which focus on the conditions of learning, particularly courses and curricula. As noted by Hannum and Briggs (1982), "the limitation of traditional approaches
to course and program development is not that they never work, but rather that the quality of instruction developed by traditional approaches varies widely, is usually unpredictable, and is often never determined at all" (p. 9).

Gaff (1975) stated that:

[The use of] educational technology in recent years has witnessed important advances in television, videotape, and computers, all of which have much potential utility for higher education. Although this potential is largely untapped, the prevalence of media, computer, and television centers on college and university campuses and the growing number of academic and technical staff skilled in these matters are valuable resources for instructional development. (p. 49)

An investigation conducted by Dear (1983) examined the state of audiovisual technology for the years 1973 to 1983. It was found that "colleges and universities have added many educational media courses to their curriculum since 1973" (p. 1613A). Furthermore, a study by Dayton (1981) conducted to determine how the production of instructional media in the year 2001 will differ from 1981 in terms of the basic nature of the process and the technology involved indicated that "the participants predicted that the nature of the production process will change over the next 20 years. Also, they indicated that instructional media will tend to become easier to use, more compact, and more flexible" (p. 236).

Consequently, there is a need to increase the application of modern techniques and devices, media technologies that can increase the efficiency and efficacy of the colleges and universities' educational process.
Barriers Affecting Media Programs

The learning resources center has two primary functions, service and instruction. Service involves the provision of whatever materials, equipment, assistance, and guidance are required by the user. The function of instruction is implemented through assisting students and faculty to inquire and to search. The nature and scope of the services to be implemented by the learning resources center will be affected by several factors that have been regarded as the main obstacles in the development of effective media service programs in higher education. These factors were: (a) institutional support, (b) budget, (c) media personnel, (d) facilities, (e) availability of instructional media, and (f) in-service training program.

Institutional Support

An important responsibility of an institution of higher education is its commitment to the improvement of instruction by encouraging the use of instructional resources and by providing funds for special research projects related to the use of instructional technology as an integral part of the instructional system.

Several studies have been conducted to examine the relationship between institutional support and the use of instructional media by faculty members in higher education. In their studies, R. C. Allen (1972), Imogie (1980), Margoles (1969), and Sanner (1974) pointed out that institutional support was significantly associated with faculty members' utilization of instructional media.
Budget

Budgeting provides the financial data to support the statements of plans and programs. In essence, the budget is the means by which money can be made to work for established objectives.

Finance was identified as a major cause of inefficient program operation in colleges and universities. An investigation was conducted by Graf (1976) to determine the adequacy of the educational media service programs at universities. It was found that inadequate budget was the main obstacle in the development of effective media service programs. This study was supported by Bannon (1979) and Joo (1980).

Media Personnel

A crucial element in media service programs is the qualifications of the media personnel. Therefore, the learning resources center on every campus should be supported by staff members with broad knowledge and experiences. Brown and Norberg (1965) pointed out that many potentially significant projects have aborted because the interested faculty members were not given sustained consultant support.

Several researchers (Forero, 1979; Moore, 1984; Soremekun, 1979) reported that lack of qualified personnel in all types of institutions surveyed was a significant factor affecting the development of educational media service programs. Further, Forero (1979) concluded that deficiency in staff of the learning resources center was a
crucial problem affecting their involvement in the design of instruction.

Facilities

Facilities for academic purposes and physical features must provide for differences in abilities and needs, offering a wide range of materials and providing spaces for individual research, group study, listening, and viewing. Various types of research were done by different investigators (R. C. Allen, 1974; Bannon, 1979; Dippolo, 1980). In their reports of studies they conducted, they indicated that physical facilities should be arranged to improve the location and accessibility of media to the total instructional staff.

Availability of Instructional Media

The selection of materials and equipment for the learning resources center is a vital element in meeting the needs of students and faculty. The nature and the amount of equipment will influence the success of the entire media program in higher education. The selection of materials varies from institution to institution as does the size of the collection. Therefore, the quality of the collection should be measured by the degree to which it fulfills the needs of the institution. An early study reported by R. C. Allen (1972) indicated the importance of the availability and accessibility of instructional materials and the accompanying equipment to instructors. Therefore, lack of the availability and accessibility of instructional media, both software and hardware, lead to
underutilization of these resources by faculty members in their instructional process (Bannon, 1979; Nkom, 1982).

**In-Service Training Programs**

Studies by Lambert (1971) and Merrill and Drob (1977) indicated that the learning resources center should offer training in the application of improved instructional strategies to faculty members on a continuing basis. The relationship between in-service training programs and the utilization of instructional media by faculty members has been studied by several investigators. Abdel-Aal (1980), R. C. Allen (1974), and Sanner (1974), in their studies, reported that in-service training programs for faculty members and the use of instructional media were positively related and highly significant.

In a study of media use in higher education, Thornton and Brown (1968) clearly defined four elements that seem essential in any institution that desires to encourage expanded and improved use of new media through instructional commitment. These elements were: (a) administrative involvement expressed in financial support and in recognition of faculty participation, by means both of released time and promotional policies; (b) adequate capital investment in both space and equipment; (c) technical staff to assist instructors in development of materials and in operation of technical equipment, with leadership of faculty status and with enough workers to complete requested work within a minimum time; and (d) faculty interest in improving the quality of instruction (p. 146).
Media Use in Higher Education

Research studies by Hostrop (1972) and Imogie (1980) discovered that the use of instructional media by faculty members in higher education was very poor. Further, Eble (cited in Kozma, 1978, p. 438) observed in his study of 70 colleges that classroom teaching is still largely a matter of a single professor talking to fairly large numbers of students. Even though innovative practices are found on almost every campus, the dominant mode of instruction remains the lecture. This finding was supported by Sinclair and Warin (1977), who have indicated that despite the advances of modern science and technology, teaching today in some respects is still by the conventional method.

The acceptance of instructional media as resources in many institutions to support the teaching process and to improve the conditions of learning is dependent on faculty members understanding the nature of the technology and its relevance to the teaching-learning process.

According to Purdy (1975), media experts and administrators focus on the faculty reaction to technological innovation which they believe has been introduced successfully. But unless the concerned faculty perceive the innovation as a useful teaching device, it remains an adjunct, doomed to remain on the periphery.
Factors Affecting the Use of Instructional Media

Faculty Attitude

Several relevant research efforts, however, do suggest that faculty attitude is a very crucial factor in determining the acceptance of instructional media as an efficient new method to improve the quality of instruction. A comparative study of faculty attitudes toward teaching by closed-circuit television conducted by Handleman (1960) concluded that "although experiments indicate students learn by television, faculty acceptance is considered critical to the success of the medium in education" (p. 1290). Further, Chu and Schramm (cited in Jamison, Suppes, & Wells, 1974), in their conclusion relevant to faculty attitudes, noted that faculty attitude was positively related to the use of instructional media. Proctor (1983) theorized that "if media were not used to teach a lesson, it was because of attitudinally based reasons rather than a perceived barrier or lack of the appropriate knowledge of how to use media" (p. 1307A).

A conclusion which can be drawn from the previous studies is that there is evidence that the utilization of instructional media in both teaching and learning is dependent upon faculty members' attitudes toward the use of more technological devices and materials in their classroom settings. Therefore, this requires ascertaining the attitudes of faculty members toward the use of instructional media.

Several studies were primarily concerned with the identification of other factors that influence the use of instructional media.
These factors were (a) type of institution, (b) subject field, (c) academic rank, (d) degree held, (e) teaching experience, (f) formal courses in educational media, and (g) in-service media training programs.

**Type of Institution**

The underutilization of instructional media in higher education was discussed by several studies. R. C. Allen (1974), Bender (1980), and Mims (1984) found in their studies that type of institution was significantly associated with faculty members' utilization of instructional media.

**Subject Field**

Numerous studies have been conducted by different investigators to examine if a difference exists between the subject areas taught and the use of instructional media. Librero (1982), Grant (1970), and Wimberly (1975) reported in their studies on the subject field taught. Therefore, the importance of this factor has been emphasized by several investigators.

**Academic Rank**

The effect of academic rank as a factor upon the utilization of instructional media has been studied by several researchers. An early study by McIntyre (1963) found that there is a positive relationship between faculty rank and the utilization of instructional media.
**Degree Held**

The importance of this factor has been emphasized by different studies. These studies reported indicate that the use of instructional media is related to the degree held by faculty members. Abdi (1981) found that the frequency of use of instructional media was greater among faculty with master's degrees than with doctoral degrees.

**Teaching Experience**

An abundance of literature has been published concerning the relationship between the degree held by faculty members and the use of instructional media in colleges and universities. Abdi (1981), Morton (1980), and Stephens (1972), in their studies, found that there is a positive relationship between instructional media use by faculty members and their teaching experience. Further, S. C. Sikkhabandit (1977) found that "instructional media were used more by college instructors with less than 10 years of teaching experience" (p. 3230A).

**Formal Courses**

The importance of this factor and its affect on the use of instructional media by faculty members in higher education has been studied by several investigators. Numerous studies were conducted by Abdi (1981), Al-Debassi (1984), R. M. Davis (1983), Larry (1984), and Morton (1980). Results of these different studies suggest that the
The relationship between faculty members' training and the utilization of instructional media in institutions of higher education has been emphasized by a number of investigators in recent years (Abdel-Aal, 1980; Ajibero, 1985; Khosh-Chashmi, 1983; Mafton, 1981). An investigation was conducted by Al-Debassi (1984) to determine the relationship between teacher's training and the use of educational media in higher education. It was, however, found that teachers who have attended in-service training programs in educational media used significantly more instructional media in their teaching courses than teachers without training.

Statement of the Problem

The purposes of this study were:

1. To determine the status of the media service programs in two-year colleges, four-year colleges, and universities as measured by the media director in each institution.

2. To examine the relationship between the quality of the media service programs and the attitudes of faculty members in regard to the use of instructional media.

3. To determine whether (a) type of institution, (b) subject field, (c) academic rank, (d) degree held, (e) teaching experience, (f) formal courses in educational media, and (g) in-service media
training programs are factors involved as measured by a faculty questionnaire on the use of instructional media.

Research Questions

This study was designed to answer the following questions:

1. Do the attitudes of faculty members in institutions rated as having high quality media service programs differ from the attitudes of faculty members in institutions rated as having low quality media service programs in regard to the use of instructional media?

2. Do type of institution, subject field, academic rank, degree held, length of teaching experience, formal courses in educational media, and in-service training programs in instructional media uses affect faculty members' attitudes toward the use of instructional media?

Definition of Terminology

Attitude

Page and Thomas (1977) defined attitude as "a predisposition to perceive, feel or behave towards specific objects or certain people in a particular manner. Attitudes are thought to be derived from experience, rather than innate characteristics, which suggest that they can be modified" (p. 32).
Instructional Media

Wood, Smellie, and Bloos (1980) defined *instructional media* as "the broad range of techniques, settings, materials, devices, classroom management devices and styles of instruction available for selection and use to the achievement of learning objectives" (p. 378).

Wood et al. (1980, p. 381) defined the following terms as:

**Materials** are nonhuman learning resources which contain messages for instruction and which have direct interface with learner. Examples are overhead transparencies, slides, 8 mm films, 16 mm films, videotapes, audiotapes, tape recordings, disc recordings, programmed materials, programmed tutoring materials, audio-tutorial materials, and computer-assisted software.

**Devices** are items of equipment or implements used for the display of transmission of instructional materials. Examples are overhead projector, slide projector, 8 mm film projector, 16 mm film projector, videotape recorder, television set, record player, tape recorder, teaching machine, motion picture projector, opaque projector, and computer input/output devices or hardware.

**Techniques** are specific methods and modes for structuring and using materials, devices, setting, and people to carry the message. Examples are computer-assisted instruction, programmed instruction, simulation, gaming, discovery, inquiry, field trip, team teaching, individualized instruction, self-instruction, group instruction, and combining media.
Settings are locations either designed for instruction or locations where instruction can take place. Examples are classroom, auditorium, and laboratory.

Bender (1980) defined hardware as "the necessary technological devices which are required for the proper use of instructional materials" (p. 212), and software as "all forms of media which can be used as materials in the instructional program, as contrasted with hardware" (p. 213).

Educators use audiovisual media, educational media, instructional media, and/or new educational media terms to describe the same field. However, these terms are used to mean the same thing (Erickson, 1968; Erickson & Curl, 1972). Moreover, instructional media is a somewhat more specific expression that educational media, connoting formal and systematic application to pedagogy (Erickson, 1968).

Furthermore, the term instructional media means all equipment and materials traditionally called audiovisual and all of the so-called new media, such as films, transparencies, programmed instruction, television, audio-tutorial materials, videotape, motion picture projector, teaching machines, mediated self-instruction, student response systems, simulations, computer-assisted instruction software and hardware, and computer-based instruction.

Since the terms new educational media and educational media or new instructional media, refer generally to the same kinds of media, namely, all instructional media exclusive of the print medium, the present study will use them interchangeably.
Learning Resources Center

Merrill and Drob (1977) defined learning resources center as an organized activity consisting of a director, staff, and equipment housed in one or more specialized facilities for the production, procurement, and presentation of instructional materials and the provision of developmental and planning services related to the curriculum and teaching on a general university campus. (p. 15).

Media Program

Media program can be described as patterns of interfacing among program components, e.g., people, materials, machines, facilities, and environments managed by media professionals who establish and maintain relationships between or among the components (American Association of School Libraries & Association for Educational Communications and Technology [ALA & AECT], 1975, pp. 110-111).

Because of the need for additional learning resources, especially hardware and the accompanying software, has developed, various names have been applied to the field. However, a variety of names such as audiovisual center, instructional media center, curriculum materials center, instructional communication center, and learning resources center are the titles various school systems have applied to the organizations which have been established to help teachers make best use of modern methods, materials, and equipment (Erickson & Curl, 1972; Merrill & Drob, 1977).

For the purposes of this investigation, the term learning resources center (LRC) refers to this general field. Therefore, the definition of the LRC which is stated by Merrill & Drob (1977) will
be used in this study because it includes the facilities for the origination, distribution, and display of audio, television, and graphic materials for group and individual presentation; the instructional materials thus created and recorded; and the persons employed to participate with the faculty in their creation, presentation, and evaluation.

**Educational Technology**

Educational technology is that broad field of endeavor where scientific processes are applied to the solution of educational problems (Wood et al., 1980, p. 375).

**Instructional Technology**

Instructional technology 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 nonhuman resources to bring about more effective instruction (Brown, Lewis, & Harcleroad, 1973, p. 3).

**Community College**

Bender (1980) defined community college as

a publicly supported institution of higher education which offers instruction, both formal and informal, below the baccalaureate degree for high school graduates or post-high school age, and provides a program which reflects the specific needs and interests of the local community. (p. 212).
**Junior College**

The junior college includes institutions offering general and specialized education to persons beyond high school age, either to meet immediately their present educational needs or to prepare them for further study (Thornton, 1972, p. 80). According to Thornton (1972), community junior college is a kind of junior college which is usually a public institution, draws most of its students from its supporting community, develops programs of study in response to needs of the local community, and is likely to offer a wider variety of courses than a noncommunity junior college, which intends to attract students from a much wider geographic area.

**Teaching Innovation**

A teaching innovation is an idea, practice, activity, application, or event which occurs in an instructional situation which is perceived to be new by an individual or group of individuals (Bender, 1980, p. 213).

**In-Service Training**

In-service training refers to an ongoing planned program to provide, for professional staff, opportunities to develop skills for carrying out their responsibilities more effectively and efficiently.
Significance of the Study

As noted earlier, several studies showed that students can learn more when new instructional media are used properly in the teaching-learning process than conventional teaching methods. Often, the students' attitudes toward new media utilization are changed in a favorable direction after being exposed to different instructional media. Also, students generally exhibit positive attitudes toward the use of instructional media.

Reviews of relevant studies indicate that faculty members' attitudes toward the use of the new instructional media is considered a major reason in determining the acceptance of instructional media in higher education.

Finch, Gustilo, and Wiersteiner (1970) stated that "the more positive a teacher's attitude is toward instructional resources, the more likely he or she is to use the resources" (p. 39).

The present study was primarily concerned with the effect of certain variables on the attitudes toward the use of instructional media. However, it was also considered important to research the relationship between these factors and the attitude of the faculty members in different institutions of higher education in order to identify the weaknesses and the strengths of the existing media service programs in each institution surveyed. Therefore, the outcomes of this study should assist administrators and media personnel, professionals, and staff in recognizing the main obstacles that prevent the development of effective media service programs.
Further, since instructional media have brought numerous positive changes in education, it clearly would be worthwhile to study the backgrounds of faculty members because it is a crucial element in the teaching process before planned change is introduced to improve the quality of instruction. Equally worthwhile would be to identify those variables that hinder the use of instructional media in order to develop a planning approach which will assist faculty to utilize different formats of instructional media. Consequently, faculty members should be eager to try new methods of teaching. To achieve this goal, new teaching tools and techniques should be implemented and developed through the use of media technologies.

Additionally, the outcomes of the present study will attempt to assist those who are responsible for implementing the educational process in higher education to consider the differences among faculty members with regard to their professional experiences and personal interest in order to redesign the educational program in colleges and universities.

Further, the outcomes of this investigation will point out some recommendations pertaining to changing faculty members' negative attitudes toward the application of the new technological devices and materials. To achieve this goal, administrators, media personnel, faculty members, curriculum experts, and instructional developers should simultaneously work together in planning, designing, and organizing the media service programs in colleges and universities. This joint effort, therefore, should reduce faculty members' resistance to
the use of instructional technology and increase the optimum use of available learning resources.

Summary

The growing number of technological devices and related materials in the institutions of higher education have brought about a considerable need to research their effectiveness in the educational process. This need focuses on ways of improving instructional resources, human capabilities, facilities, and materials. A special emphasis is on ways of improving the teaching-learning process through the use of instructional media.

The importance of educational media service programs to the total instructional process has been emphasized by several studies. As noted earlier, the success of the media service programs in institutions of higher education will be affected by several barriers. In their studies, R. C. Allen (1972, 1974), Graf (1976), Merrill & Drob (1977), and Moore (1984) pointed out that the lack of institutional support, budget, media personnel, facilities, availability of instructional media, and in-service training programs have been regarded as the main obstacles in the development of effective media service programs in colleges and universities.

Other studies (Ajibero, 1985; W. H. Allen, 1971; Finch et al., 1970; Handleman, 1960; Moldstad, 1974) demonstrated that instructional media are valuable tools in the teaching-learning process and showed their effectiveness in improving instruction and learning. However, regardless of new methods and devices made available to
faculty members and the finding of their efficiency and efficacy, the
dominant mode of instruction remains the lecture in colleges and
universities.

Further, several researchers have studied the relationship be­
tween faculty attitudes and use of instructional media. These
studies suggest that faculty attitude is a very crucial factor in
determining the utilization of instructional media (Finch et al.,
1970; Handleman, 1960; Proctor, 1983; Purdy, 1975). This study was
designed to examine several factors and their relationships with the
attitudes of faculty members toward the use of instructional media in
selected colleges and universities. These factors were: (a) type of
institution, (b) subject field, (c) academic rank, (d) degree held,
(e) teaching experience, (f) formal courses in educational media, and
(g) in-service media training programs.
CHAPTER II

REVIEW OF SELECTED LITERATURE

Discussion of instructional media utilization and the attitudes of faculty members will be the main theme in this part of this study. Specifically, this part will provide some information from the literature to expand the research background and discuss each idea in order to present the theoretical framework for the study as outlined previously in the statement of the problem. More specifically, the review of selected literature will focus on media programs in colleges and universities, factors affecting the development of media service programs, new media and college teaching, comparison between instructional media, the acceptance of instructional media, media use and faculty attitudes, factors influencing media utilization, hypotheses of the study, and lastly, will include a summary which will present a justification for stating the questions of this investigation.

Media Programs in Colleges and Universities

Increases in undergraduate and graduate disciplines produces considerable increased demands on college and university libraries for research materials and services. In addition, advances of modern science and technological developments have initiated a new role in instruction and produced dramatic changes in the traditional role of the library as a depository for technical books more or less in the
nature of textbooks. However, these advances and developments involve use of a wider range of what is termed new media. Furthermore, the growth of modern media services and facilities in higher education has produced new demands that require qualified media personnel to support the learning process through constructive relationships and cooperation with faculty, media experts, and students.

Fulton, King, Teague, and Tipling (1979) have indicated that an institution of higher education should have a program of educational media services administered through an institutional media center with an adequate supply of appropriate instructional materials. The center should be a service unit that operates at the same level as other major institutional services with clearly defined policies, procedures, and plans, including short-range and long-range goals.

**Typical Functions of Higher Education Media Services**

Because of the wide variety of clientele served and the different professionals involved, there have been many typical functions assigned to the LRC as a service center for higher education. These functions, as indicated by Brown, Norberg, and Srygley (1972), include the following:

1. Participation in (but not full responsibility for) the design of instructional systems, a process involving the comprehensive analysis of human and nonhuman factors and their interrelations in teaching and learning.

2. Circulation of printed materials, involving the use of modern information storage and retrieval systems.

3. Circulation of motion pictures and other audio-visual materials and equipment for on-campus instructional purposes.
4. Off-campus circulation of educational materials through extension services and/or by means of cooperative "service-area" programs.

5. Customized production of instructional materials such as motion pictures, graphics, and photographic materials.

6. Provision of facilities and coaching for faculty members and students to prepare their own inexpensive instructional materials, such as overhead transparencies, slides, and charts.

7. Provision of services and facilities for large-group instruction, including open and closed-circuit television and special classrooms designed for use by groups of varying sizes and equipped for the use of various media or for multimedia presentations.

8. Television and radio broadcasting for regional and community education (in the broad sense) and for off-campus instruction of enrolled students.

9. Provision of language laboratories and other electronic teaching or learning facilities for independent study and automated instruction.

10. Monitoring of programmed instruction, including the use of teaching machines.

11. Technical services such as the design, installation, maintenance, and operation of instructional equipment of all kinds, including television and radio transmitters, electronic components for language laboratories, classroom communication and student-response systems, projectors, magnetic recorders.

12. Assistance in planning and designing new buildings and instructional facilities to promote efficient use of educational media.

13. In-service education and dissemination of information regarding instructional media developments, techniques, and research finding.

14. Experimental development and trial of instructional devices, techniques, and materials.

15. Professional education of specialists and generalists qualified to assume positions of leadership in planning and directing educational media programs and research
Ordinarily, not all of the preceding services are provided in a single educational media program. However, the most important aspects of an educational media program in a college or university in relation to the institution and its instructional objectives are to provide an organized and readily accessible collection of materials and supportive equipment needed to meet institutional, instructional, and individual needs of faculty members and students, and to provide a staff qualified, concerned, and involved in serving the needs of faculty and students. Further, a media program today represents a combination of resources that includes people, materials, machines, facilities, and environments, as well as purposes and processes.

According to Prostano and Prostano (1982), media programs should include three elements:

1. Foundation elements "inputs" which include personnel, facilities, media, and budget.

2. Support elements which include planning, organizing, staffing, directing, and controlling.

3. Primary elements "outputs" which include planning and implementing curriculum, instructional and in-service programs, design and production, and guidance and consultant services, thus, these elements are mutually dependent.

Evaluation of Educational Media Programs

The contribution of the educational media programs to instruction in a college or university is determined largely by the extent to which the media services are provided to instructors and students through an organized program. Therefore, it is necessary that there
be evaluation procedures related to a set of criteria which determine the effectiveness of the media program in serving the educational objectives of the institution. With this in mind, the following is a list of major guidelines that ought to be taken into account in the evaluation of a media program:

1. Media programs should have well defined goals and objectives that support the institutional goals.

2. The media program should be an integral part of the total instructional program and should be functionally related to its curriculum.

3. There should be sufficient professional staff, clerical and technical personnel, each with appropriate training and experience, to administer the program, provide services to faculty members and students.

4. The media program must have adequate financial support based on its role as a part of the instructional program.

5. The media program should provide for continuous in-service education to the faculty and to the media staff to expand the use of appropriate instructional materials and new equipment.

6. The media program should provide for adequate participation of teachers, supervisors, and others in the selection of instructional materials and equipment for acquisition.

7. The media program should provide resource personnel and facilities to assist teachers and students in developing needed instructional materials.

8. The media program should provide for productive instructional research for its own evaluation, and for continuous planning that can meet the demands of education and the new instructional developments as well as new developments in communications.

9. There should be adequate provisions for necessary local processing of materials and for maintenance and repair of materials and equipment.
10. There should be systematic provisions for eliminating materials that are obsolete or otherwise unsuited for further circulation. (Brown et al., 1972, pp. 415-417)

Numerous studies have been conducted by different investigators to determine the adequacy of the educational media services programs in higher education. More specifically, these studies have examined the status of the educational media services programs in colleges and universities. An investigation was conducted by Lambert (1971) to determine the status of the educational media program in colleges and universities. Analysis of the data revealed that the following fundamental elements were important in implementing the educational media services program. These elements were:

1. The in-service education program should be conducted by the professional media staff to acquaint the faculty with media services and the appropriate utilization of educational media.

2. The involvement of professional media personnel with faculty is necessary in curriculum development and in the integration of appropriate media and technology into the instructional process.

3. The educational media center should have facilities and personnel to locally produce a range of media and original materials for faculty utilization.

4. There should be sufficient number of professional, technical, and clerical media personnel to provide comprehensive educational media services. (p. 3295A)

Factors Affecting the Development of Media Service Programs

Various researchers have reached conclusions indicating that the development of the educational media service programs in higher education is related to some factors that have been regarded as the
main obstacles in the development of effective media service programs in colleges and universities, namely, (a) institutional support, (b) budget, (c) media personnel, (d) facilities, (e) availability of instructional media, and (g) in-service training programs.

**Institutional Support**

Several studies have found that there is a relationship between institutional support and the development of media services programs in higher education. Margoles (1969) concluded that a higher education institution has an important role to play in meeting its obligation to instructional change through support systems such as media services which will have a positive impact on the faculty use of instructional media. Another study by R. C. Allen (1972) was conducted to examine the status of the educational media program in colleges and universities. It was, however, concluded that "if the institutions that have weak programs had stronger administrative commitments their programs could be stronger" (p. 2003A). However, he recommended that more effort should be made by university and college administrators to achieve a greater commitment to the support of their educational media programs. The results of the preceding studies were supported by K. W. Allen & Allen (1973) and Sanner (1974).

In addition to the foregoing studies, several studies have been conducted to investigate the factors that affect the use of instructional media by faculty members in higher education. A study was done by Ittelson (1979) with regard to the several factors that
affect the use of instructional media by faculty in liberal arts colleges. Thus, the availability, reliability, and convenience of use of instructional media for instructional purposes as the major factors were examined in this study. The results indicated that institutional support was significantly associated with the faculty members’ utilization of instructional media. Further, the encouragement of faculty members through institutional support whether by their colleagues or by administration was significantly related to the increase of use of instructional media by faculty members in their classroom settings.

Furthermore, Imogie (1980) conducted a study with regard to the factors associated with faculty utilization of instructional media in a university context. The ultimate purpose of this study was to assist a variety of people concerned with educational innovations involving instructional media in a university context. Data were collected by using a questionnaire on frequency of instructional media use, university support for instructional media, sources of information, and the constraints on instructional media use. The results indicated that the majority of the faculty members felt that the university was not providing the necessary support to encourage them to use instructional media.

Budget

Finance is one of the most important factors which tends to have implications for many other areas. Adequate financial support of the learning resources center (LRC) is a crucial factor because of the
diversity in personnel, equipment, materials, and facilities needed to improve the existing services and to make them available to the users.

Finance was identified as a major cause of inefficient program operation in colleges and universities. However, K. W. Allen and Allen (1973) reported that colleges should have adequate financial resources in order to improve the quality of their media services programs. Additionally, a study was conducted by Bannon (1979) to determine the present status of educational media services in the public four-year institutions of higher education in Louisiana. Data were gathered from the educational media directors at 13 public universities. The results indicated that "most of the media directors believed that inadequate budget was the main obstacle in the development of effective media service programs" (p. 3061A). Furthermore, a study was done by Graf (1976) to examine the adequacy of the educational media service programs at universities as perceived by the faculty, departmental chairpersons, and media directors at institutions of higher education. It was found, however, that "respondents to this study perceived budget provisions for the media services programs as being the most inadequate elements of the programs" (p. 2588A). Thus, the important fact to emphasize here is that there is a relationship between adequate financial support and the development of the educational media service programs. Therefore, this notion was supported by several studies. Hutchinson (1981), Nkom (1982), Russell (1981), Soremekun (1979), and Vorakitpokatorn (1980), in their studies, pointed out that an
adequate financial support as a factor is related to the development of effective educational media service programs in universities.

The preceding studies have dealt with the financial support as a factor in only one type of institution, namely, in a university context, as noted earlier. Many studies have been undertaken to identify the factors that affect the development of effective media service programs in colleges and universities; the findings of these studies do suggest that an inadequate budget was a factor that downgraded the services of the LRC.

Generally, Merrill and Drob (1977) suggested tremendous criteria for planning the college and university learning resources center. Hence, they pointed out that the budget of the LRC is an important factor in improving the current status of the education media service program in colleges and universities. For this reason, they recommended that "direct funding for the learning resources center should be available in an amount necessary to provide for equipment replacement, research and development, consultation in instructional development, group and self-instructional presentation services, and planning services as a minimum" (p. 111). An investigation was conducted by Joo (1980) to identify the current status of audiovisual centers in colleges and universities. It was found that lack of inadequate budget was regarded as the main obstacle in the development of an effective audiovisual service programs (p. 3713A). Further, Dipaolo (1980), in his study of media production services in colleges and universities, found the lack of stable funding was the main problem that prevents the local production of different kinds of materials.
Media Personnel

Crucial to the development of educational media programs in colleges and universities is the availability of adequately trained personnel. Therefore, several researchers have indicated that the learning resources center requires broadly educated and well-qualified personnel. An investigation was conducted by S. Sikkhabandit (1977) to determine the status of audiovisual programs in teachers colleges. It was found that the lack of adequate media personnel was the major problem in increasing and improving the current services. Another study by Moore (1984) indicated that the personnel of the learning resources centers in community colleges have different formal training in either library science or instructional technology, and there were also a large number of students working as aides in these colleges.

Furthermore, a study was conducted by Soremekun (1979) to examine the use of educational technology in a university context. The results indicated that the lack of adequate staff was a significant factor affecting the development of educational technology. Moreover, more personnel should be trained in the area of instructional development so that they can be involved at the planning and development stages. Thus, the deficiency in staff of the media center or in LRC was a major problem in these selected universities. This notion was supported by Vorakitpokatorn’s (1978) study of the resources centers at the university level. According to Forero (1979), the lack of adequately trained personnel is the fundamental explanation.
of why media personnel's participation in the instructional design process is very limited.

In addition to the foregoing studies, several researches have been conducted to evaluate the current status of the LRC services in junior colleges, colleges, and universities. These studies have indicated that the lack of qualified personnel in all types of institutions surveyed was regarded as the main obstacle in the development of effective educational media service programs (Dipalo, 1980; Joo, 1980; Millard, 1972).

The preceding studies agreed upon qualifications that are necessary for the college and university media personnel. The success of the learning resources center in meeting the instructional objectives will depend upon well-qualified and numerically adequate media personnel and proper administration of resources, human and nonhuman. The effective learning resources center requires personnel familiar with both learning theory and practice and their effectiveness in the learning process, as well as familiarity in the areas of communication and administration. However, the important fact to be emphasized is that with the development of the instructional media and their use in many areas of disciplines, media personnel will have to place emphasis on improving their skills and acquiring more experiences. Undoubtedly, the LRC personnel should be involved with faculty in curriculum development and in the integration of appropriate media and technology into the instructional design process. The professional staff should be involved in the development and support of the college and university educational programs through
consultative services. Thus, it is necessary for a good relationship to exist between the learning resources program staff and the faculty. Bender (1980) pointed out that "the most important of these services is consultation with faculty and the creation of an environment conducive to innovative instruction. Also very important is the provision of equipment and assistance for locally produced instructional materials" (p. 136). Besides, a study by Stephens (1972) indicated that more information on available services and materials and improved communication among faculty, administration, and the LRC staff were needed in order to increase the utilization of instructional media by faculty members.

Facilities

Because of the increasing rate of change in educational requirements and the enormous growth of new media and technology, institutions of higher education will have to place emphasis on the facilities, including those required for storage, production of materials, distribution, and the use of instructional materials and related equipment. Moore (1984) pointed out:

The advent of the comprehensive LRC has greatly complicated the design of the existing facilities. These facilities will now need widely diverse areas including study areas for small group viewing and listening. Reading, browsing, listening, viewing areas, open-access areas to books and materials, conference areas, circulation, administration and planning areas, work and processing space, equipment storage and repair, media production including graphics and photography, professional collections, learning laboratories (mediated and computerized assisted instruction), darkrooms, stacks, television studio and instruction (production), storage, instructional design and other specialized areas. (p. 318)
It seems likely that arrangements should be made at the LRC to facilitate the use of instructional media within the college and university campuses in order to provide teaching-learning resources in different locations. Therefore, convenient physical environments in campuses should be appropriately designed to use a variety of instructional resources and devices.

An important factor in the development and use of instructional media and technological devices is the physical environment of the LRC and the areas that accommodate appropriate teaching-learning activities. Consequently, tremendous studies have been conducted to examine the educational media service programs with emphasis on the physical facilities which are provided within the colleges and universities.

An investigation was conducted by Bannon (1979) to determine the status of educational media services in four-year public institutions. The results showed adequate facilities were provided in all building's areas.

Soremekun (1979) indicated that "facilities for academic purposes in universities, such as classrooms, lecture auditoriums and teaching centers, were available in some institutions, yet they were not available in sufficient numbers to accommodate the large demand of each institution" (p. 223).

Various studies have been done by different investigators in both types of institutions of college and university. The primary focus of these investigations was on determining the factors that affect the utilization of instructional media by faculty members and
evaluating educational media service programs in higher education. Based on an analysis of the data reported by colleges and universities surveyed, there was an agreement that physical facilities should be arranged to improve the location and accessibility of media to the total instructional staff (R. C. Allen, 1974; Dipaolo, 1980, Joo, 1980, Sanner, 1974; Stephens, 1972).

In conclusion, an important deterrent to increase the utilization of instructional materials and related equipment is the lack of appropriate physical conditions in the teaching–learning environment. Hence, the problem of providing the required facilities should be given special attention in order to make possible the efficient use of instructional resources programs. Spaces must be designed and provided for several different purposes for large-group teaching and small-group as well, for independent study and reference work, and for production of materials and for teacher preparation activities. The environment in which the instructional process occurs should accommodate the optimum use of media equipment and materials. Brown et al. (1972) postulated that the design, construction, manipulation, and improvement of the physical learning environment clearly require the expert contributions of educational media personnel who are familiar with the educational purposes for which such facilities will be used and with the standards to which they should adhere (p. 162). The importance of insightful interrelationships of the media staff member with the teacher, the administrator, the curriculum experts, and various architectural, acoustical, electronic, and other specialists cannot be overemphasized.
The optimum use of the LRC requires that all forms of media be readily available in nearly all instructional areas. Further, a wide variety of media and materials should be accessible to faculty and students.

**Availability of Instructional Media**

The rapid growth in the number of instructional media was due to greater flexibility of individualizing instruction and the ability to involve a great number of students. There has also been a corresponding growth in terms of the services needed in each institution of higher education to respond appropriately to a variety of different disciplines.

Despite the rapid development of technological devices and the related materials for instructional purposes, the lack of availability of these resources on campuses was another problem added to prevent the expanding use of learning resources in many institutions of higher education. Consequently, the nature and amount of materials and equipment will influence the success of the entire media program. The selection of both materials and related equipment should be based on the needs of the users in each area of discipline.

Several studies were undertaken by different investigators in many types of institutions at college and university levels. An early study reported by R. C. Allen (1972) was based on the evaluation of educational media programs in colleges and universities. The qualitative data were obtained using a comprehensive self-evaluative checklist—The Evaluative Checklist: An Instrument for Self-
Evaluating an Educational Media Program in Colleges and Universities. Also used was an inventory check-sheet used to obtain quantitative data to determine whether an institution met the quantitative standards for audiovisual personnel, equipment, and materials. Analysis of the data reported by 36 of the 40 institutions surveyed revealed that the media programs' materials and equipment were not well located (geographically) nor were they readily available and accessible to instructors in relation to the rest of the ongoing educational process. Similar positive results of the importance of the availability of instructional materials and the accompanying equipment have been reported by several studies (Bannon, 1979; El-Sharkawy, 1983; Imogie, 1980; Nkom, 1982; Soremekun, 1979; Vorakitpokatorn, 1980). Therefore, in their reports of studies they conducted, they indicated that the lack of the availability and accessibility of instructional media, both software and hardware, was considered an important problem for the development of an effective media service program and, therefore, led to underutilization of these resources by faculty members in their instructional process.

An investigation of audiovisual hardware acquisitions in colleges and universities during the period 1970-80 was conducted by Bynon (1980). Fourteen colleges and universities participated. All had audiovisual media programs. Based on analysis of the data gathered, audiovisual hardware acquisitions did not meet the instructional needs of the institutions surveyed. Based on the foregoing finding, the study pointed out that approved program standards for acquisitions and replacement policy must be developed identifying the
needs of the institutional environment.

A different study was done by R. M. Davis (1983) to determine the audiovisual production at the university level. It was found that the major deterrents to production of materials were the lack of time to plan and prepare materials, lack of materials, lack of equipment, and lack of technical assistance to do the involved techniques. Therefore, to encourage both the preparation of materials and effective planning, "health science teachers will need to be supported by being given time for these activities and by being given recognition for their media production just as they would for a publication. They must also be provided with the materials and other resources needed to plan and prepare their own teaching materials" (p. 2861A).

In-Service Training Programs

An examination of the types of equipment and materials currently being circulated by the learning resources center provides crucial evidence that change is taking place in terms of the applicability and utilization of newer media in instructional programs. Furthermore, the variety of the newer media for their use in different disciplines requires great assistance from media personnel to help faculty members in their selections and the use of the appropriate media materials and the accompanying equipment. Also, the acceptance of the use of instructional media by faculty members is dependent upon the services that are provided by the learning resources center's personnel. For this reason, Lambert (1971) indicated that in-service training programs to acquaint the faculty with the media
services and proper utilization of instructional media should be continuously conducted.

Furthermore, several research studies were undertaken by different researchers to evaluate the current media service programs in colleges and universities. Sanner (1974), R. C. Allen (1974), S. Sikkhabandit (1977), Abdel-Aal (1980), and Anandam and Kelly (1982), in their reports of studies they conducted, indicated that faculty training programs are cited as the most important reason inhibiting wider uses of instructional media and hindering the development of an effective educational media service programs in higher education.

Additionally, numerous studies have been undertaken to examine questions related to the identification of factors that influence the use of instructional media. There were consistent findings among the researchers regarding the in-service training programs. Ogunmilade (1979), Soremekun (1979), and Imogie (1980) found in their studies that in-service training programs for faculty members and their uses of instructional media were positively related and highly significant.

It is apparent from the preceding findings of the studies mentioned earlier that the need for planning and conducting educational in-service training programs is essential for providing and improving the ability for both experienced and inexperienced faculty. Further, the learning resources center's professionals should be prepared well, as noted in earlier studies, to meet new needs and implement innovations in colleges and universities.
Numerous studies have been conducted which focus upon the use of different forms of instructional media in teaching. These studies have not only focused on the criteria of student achievement, performance, and ability of the student to work with instructional media, but also have focused on the comparison between different forms of media and their effectiveness to modify students' attitudes.

**Computer and Learning**

Several investigations were primarily concerned with computer-assisted instruction (CAI) and its effectiveness on students' achievement. In a study concerning the evaluation of an interactive video-disc system, Braun (1984) concluded that "computer-assisted instruction is beneficial in instruction and that the video-disc-based system provides a dramatic improvement in performance of students" (p. 125).

Only two studies were primarily concerned with the effectiveness of computer-assisted instruction according to ability level. Martin and Suppes (cited in Edwards, Norton, Taylor, Weiss, & Dusseldorp, 1975) found "computer-assisted instruction drill and practice in arithmetic to be relatively more effective for low ability students than for average or high ability students" (p. 151).

The relationship between previous experience and the use of a computer to solve problems was investigated by many researchers. One of these studies was conducted by Soloway (cited in Braun, 1984).
This study showed that "students who have taken a one semester course in computer-programming were able correctly to solve algebra word problems more reliably than were students without that experience" (p. 123).

There have been substantial numbers of evaluative studies on the impact of computers in drill-and-practice application. One of these studies was conducted by Bracey (cited in Braun, 1984). It was found that "students using CAI learned to the same criteria faster than non-computer-assisted instruction students" (p. 121).

The preceding findings showed the effectiveness of using computers in drill-and-practice and computer-assisted instruction on the various samples of students in many subject areas. Further, other studies were undertaken to compare the use of computers in instruction and a traditional approach.

In a comparison between computer-assisted instruction and conventional teaching methods, it was found that "the CAI subjects performed significantly better than those subjects instructed by conventional teaching methods (CONV)" (Hahn, 1983, p. 964A). In contrast, D'Souza (1984) found that "CAI was equally as effective as traditional teacher-directed instruction. However, the role of teacher will alter somewhat when CAI is employed" (p. 1658A). Other studies (Lewellen, 1971; Vinsonhaler & Bass, 1972) supported findings of better performance of CAI students on standardized tests when compared to performance of students who received traditional instruction.
Another comparison study was done in actual college classrooms by Kulik, Kulik, and Cohen (1980). It was found that computer-based instruction made small but significant contributions to the course achievement of college students and also produced positive effects on the attitudes of students toward the subject matter they were studying. They also found computer-assisted instruction substantially reduced the amount of time needed for instruction. Therefore, it appears that CAI is a useful alternative to traditional methods of instruction in college classrooms, especially in situations where instruction and/or student time is limited.

A review of researches on the using of the computer-assisted instruction, Thomas (cited in Burns & Bozeman, 1981) concluded that:

The students reviewed paint a positive picture for computer-assisted instruction. In the past years, proponents hoped to see great achievement gains for CAI courses, spoke of very low costs and high retention, and did not mention time at all. Today, CAI as a medium has "settled down." Achievement gains over other more traditional methods are the norm, but mere equivalence with good instruction is also attained. Retention is equal to that obtained in traditional instruction. The technology fosters generally favorable attitudes toward computers and often toward the subject being taught. Perhaps the most valuable finding in the long run is that many CAI students gain mastery status in a shortened period of time. (p. 36)

**Instructional Television**

Considering the evaluation of television application in teaching, the results of all studies mentioned by Braun (1984) showed very positive effects of TV programs when they are well designed and used correctly (pp. 124-125).
Many studies have compared different forms of media with teacher-directed instruction as to their relative effectiveness in teaching. Lofthouse (cited in Reid, MacLennan, & Greenhill, 1967) found that "there were no significant differences in examination scores between the instructional television (ITV) or face-to-face groups. . . . Students preferred face-to-face over ITV presentations when instructor and teaching methods were constant. . . . Students regarded instructional procedures as being equally effective whether presented by face-to-face or by instructional television methods" (pp. 119-120).

Moreover, the effectiveness of instructional television (ITV) has been studied with various populations of students in many subject areas. At the college level, Mount and Walters (1981), in their study, compared the performance of students in a televised introductory psychology course to that of students in a traditional introductory psychology course at a community college. All students had the same instructor and textbook. They took the same tests. It was found that students in the televised introductory course did significantly better than those in the traditional introductory course. In general, Anandam and Kelly (1982) reported that the review of the literature has revealed that "students seemed to prefer small discussion classes to television classes. Further, students were more favorable toward ITV after they experienced it" (p. 24). Besides, they indicated that one review surveyed approximately 862 studies that compared the effectiveness of ITV and traditional instruction (TI), and it concluded that there was strong evidence that ITV is as
effective as TI. Also, a number of students and teachers had an unfavorable attitude toward ITV, but the incidence of such attitude diminished as institutions gained experience with the medium.

Comparisons Between Instructional Media

In recent years, there has been a growing and increasing number of hardware and a corresponding growth in the development of software. Consequently, an abundance of literature has been published focusing upon comparisons between different forms of instructional media use in classrooms and their effectiveness in a teaching-learning process.

In a comparison between computer-assisted instruction and other nontraditional methods of instruction, a review of several studies by Edwards et al. (1975) indicates that "CAI has been shown to be equally effective when compared with individual tutoring, language laboratory, and media such as programmed instruction and filmstrips" (pp. 148-149). This finding was supported by Hahn (1983) who found that "there was no significant difference in performance between subjects instructed by the multimedia instruction (MM) and the computer-assisted instruction (CAI)" (p. 964A).

In a review of the literature relative to the effectiveness of alternative instructional media, Jamison et al. (1974) concluded that:

CAI attempts to improve the quality of instruction by providing for its individualization along one or more dimensions. Nonetheless, findings of no significant difference dominate the research literature in this area. Though there are often no significant differences in achievement,
some studies do report a saving in student time, and this is an index of success. When small amounts of CAI are used as a supplement to regular classroom instruction, substantial evidence suggests that it leads to an improvement in achievement, particularly for slower students. Models exist that relate the amount of achievement gain to the number of CAI sessions a student receives. (p. 56)

One investigation was primarily concerned with a comparison of videotape, audiotape, and print. One of the most interesting findings was the striking difference between the two groups as to preference in learning materials. Machula (1979) found that "86 percent of Michigan students indicated a preference for reading, whereas 70 percent of the Illinois group preferred television. Only one person in either group preferred learning by audiotape" (p. 180). However, the researcher concluded that:

Our findings indicate less cognitive learning took place with audio-tapes than with other media. Video and audio may both be at a disadvantage when compared with print due to the lack of individual control over the rate of presentation. . . . Another possible explanation for the disparity in cognitive learning might be that an audio presentation requires more effort to maintain concentration than does a video-tape or print. (pp. 182-183)

The use of audiotape by very small number has been given attention by Machula (1979), who explained the ignorance of this medium by stating that:

The fact that only one subject out of 114 preferred learning by audiotape can certainly not be ignored. It should be noted, however, that the use of audiotapes in many audio-tutorial laboratories has proven quite successful. Lack of experience with instructional audio-tapes may account for part of the overwhelmingly negative response to this medium. (p. 183)
Media and Student Attitudes

A considerable number of studies have been concerned with the relationships between the use of different forms of media and the attitudes toward their application into instructional programs.

Several investigations were primarily concerned with the use of television and film to modify students' attitudes and with the factors that produce attitude changes. However, they have shown that "such attitudes, are changed in a favorable direction by both television and film" (Reid et al., 1967, p. 13). Dubin and Hedley (cited in Jamison et al., 1974) reviewed a number of studies on the attitudes of college students toward ITV. They indicated that "students have more favorable attitudes toward ITV after they have experienced it than before; after exposure to ITV, half to two-thirds of the students surveyed reported attitudes that were favorable (as opposed to neutral or unfavorable)" (p. 37). In a study by Kulik and Bangert-Drowns (1984), they found that "programmed instruction and individual instruction have had limited success in improving students' attitudes. Computer-based instruction, on the other hand, has greatly altered students' attitudes toward the computer" (p. 137).

In determining the effectiveness of different forms of media, a comparison of videotape, audiotape, and print was conducted by Machula (1979) to examine their effectiveness. It was found that "students liked television less but learned significantly more from it than from the audio-tape which they liked more" (p. 167). Similarly, Saracho (1982) found that "students who used the computer-
assisted instruction program had greater achievement gains than did students who participated in the regular classroom program. However, those students who were not in the CAI program had more favorable attitudes toward CAI than did students in the CAI program" (pp. 216-217). However, this finding was not supported by Braun (1984), who reported that "students generally report positive attitudes toward computer-based learning and enjoy the ability to move at their own pace" (p. 121).

Machula (1979) concluded that:

The findings of this study would seem to indicate that at least in some contexts the medium which is used can play an important part in the reception of the content. Not only may experiences be perceived differently depending on the medium used, but also personalities may be perceived favorable in one medium but not in another. (p. 181)

In examining the students' attitudes toward the CAI program, Saracho (1982) explained the situation by referring to the different learning styles of these students. However, the investigator stated in this study that:

Students vary in their cognitive style and their responses to different types of instruction. Some of this variance is related to ethnicity. . . . Some students favor independent, impersonal, and direct kinds of instruction, while others prefer the opposite type of instruction. . . . It is possible that the students who used the CAI program preferred the more dependent, personal, and indirect form of instruction, which would account for the difference in attitudes. . . . Students who did not attend the CAI sessions might have wanted to experience this innovative type of instruction to which they did not have access. (p. 217)

In general, many studies have compared different forms of media as to their relative effectiveness in fostering cognitive learning, and most have found no significant difference. However, Chu et al.
(cited in Machula, 1979) concluded in a recent study that "under appropriate conditions, students can learn from an instructional medium, whether it is television, film, radio, language, lab, or programmed instruction" (p. 176). Similarly, Dubin et al. (cited in Jamison et al., 1974) concluded that "the college student as consumer of teaching does not exhibit any significant resistance to the introduction of educational television into his own instructional program" (p. 37).

In summary, the previous attempts by a number of investigators were primarily concerned with the attributes of instructional media and their effectiveness on student achievement, performance, and improvement of the ability level. For the most part, the results of which have been consistent. On the other hand, the results of the comparisons between different forms of media and their effectiveness have pointed out few significant differences. The utilization of instructional media and materials as indicated by several studies enhances students' learning. Anandam and Kelly (1982) pointed out that:

Results of research on computer-assisted instruction (CAI), computer-managed instruction (CMI), and computer-assisted guidance (CAG) seem to indicate that computerized methods of all kinds were either better than or at least as effective as noncomputerized methods in bringing about learning gains. (p. 26)

However, many studies have indicated that students achieved better or showed no difference when compared with those who were taught by the traditional classroom approach. Further, the use of different kinds of instructional media have been successfully used in many subject
areas. Other studies have shown the advantage of instructional media over traditional instruction in many college teaching situations and with different disciplines. Consequently, it appears that instructional media are a useful alternative to traditional methods of instruction in the college classroom. Therefore, the previous evaluations of different kinds of instructional media gave college and university educators an additional perspective in terms of their effectiveness in many subject areas and demonstrated that institutions of higher education would accept these media and technology as important teaching and learning resources.

Additionally, each medium has its strengths and weaknesses. From the learners' perspectives, the instructional media can transmit information, highlight important ideas, provide a constant interchange between the learner and the program, illustrate abstract concepts, clarify complex themes, stimulate thinking, foster problem-solving skills, provide immediate feedback to specific responses, maintain learner's interest through the use of feedback, simulate experiences, and foster aesthetic appreciation and pleasure in reading, viewing, and listening. Consequently, the selection of a specific medium that best matches both the purpose for the learning and the purpose for a particular student is a crucial step when designing the instructional program.

Acceptance of Instructional Media

The adoption of new innovations in higher education makes the individual teacher see the advantages of the change and how
beneficial are the results if the new ideas are applied in the teaching-learning process. The acceptance of new innovations goes through five stages which are described as follows:

1. **Awareness stage:** The individual learns of the existence of new ideas but lacks information about it.

2. **Interest stage:** The individual develops interest in innovation and seeks additional information about it.

3. **Evaluation stage:** The individual makes mental application of new ideas to his present anticipated future situation and decides whether to try it.

4. **Trial stage:** The individual actually applies the new idea on a small scale in order to determine its utility in his own situation.

5. **Adoption stage:** The individual uses the new idea continuously on a full scale. (E. M. Rogers & Shoemaker, 1971, pp. 100-101).

R. I. Evans (1970) postulated that "the actual characteristics of an innovation are of little importance to its adoption. What does seem to matter is the way in which the individual perceives the relative values of an innovation" (p. 16). This notion was supported by Boles (1980), who stated:

Uncertainty is the major factor in resistance to change; the individual who will be affected by a proposed change needs to have her/his uncertainties reduced by learning how the change will affect her/him. If the results seem likely to be beneficial, the change will be welcomed. It is only when results of the change are unknown or are perceived as certain or likely to make the individual's state-of-being less desirable that change is resisted. . . . One has little choice in accepting unplanned change. With planned
change, we perceive a choice of accepting or not accepting and the option we choose is dependent on perceived effects on us. (pp. 136-137)

The influence of educational technology and its effectiveness in instructional development programs has been criticized by many institutions of higher education. However, Gaff (cited in Sprague, 1981) stated:

In higher education, where audio-visual media are often viewed as being nonessential for college teaching, instructional development programs which are seen often as only adjuncts to audio-visual services will often be less effective. This is probably one reason for the University of Michigan's Center for Research on Learning and Teaching to have downplayed the role of audio-visual technology and hardware in its instructional development program. (p. 24)

The growth of instructional development facilities at colleges and universities provides a wide variety of instructional programs to contribute to the development of college and university teaching through the application of educational technology.

The existence of the new technology has created a wide variety of responses from faculty members. Therefore, different studies have been conducted in many areas by different educators to investigate the contradictory views about the new roles of innovation in teaching and learning process by getting the reactions from faculty members in many institutions.

A study of faculty's attitudes toward technological teaching media at California Community College was conducted by Purdy (1975), who examined some uses of instructional innovation on campus, such as audio-tutorial courses, computer-assisted instruction, learning resources centers, and television. It was, however, found that...
"reactions to innovation differ according to a teacher's age, his discipline or personal values" (p. 9).

The problem of underutilization of instructional media by many teachers was studied by different researchers. For instance, the use of instructional television was studied by S. C. Sikkhabandit (1977), who found that:

The adopters who had some knowledge of television, are more favorable toward the use of closed-circuit television (CCTV) than the non adopters, who had less knowledge about CCTV. Adopters and non adopters do not differ with regard to sex and degree held, but differ significantly with regard to age, teaching experience, levels taught, and subject areas taught. (p. 3230A)

Considering S. C. Sikkhabandit's (1977) findings, Joo (1980) found that "teachers' resistance to adopting newer methods of teaching and their ignorance of audiovisual equipment hindered the utilization of audiovisual materials in class" (p. 3713A).

The adoption of new media in colleges and universities in many areas for enhancing the qualities of the teaching and learning process has been considered the primary role of the academic library. With regard to the "adoption" of an innovation, Bender (1980) has indicated that "faculty committed to innovative instructional programs regard media as a priority item" (p. 137).

The question, "Why do instructors at one institution incorporate new innovations media into their teaching, while others drop new devices from their teaching-learning process?" has created many explanations about educators' resistance to the use of instructional technology. According to Rose (1982), several factors influence the individual educator's reluctance to use nontraditional educational
technologies, however. Rose stated:

1. Educators may lack an understanding of the nature of the technology, the philosophical assumption underlying its use, and its relevance to objectives and learning outcomes.

2. Technology is often perceived by educators as a threat to their jobs.

3. Educators may experience conflict between their ideals and self-interest/preservation. For example, an educator may feel that students learn more in a non-traditional system, but he/she enjoys the personal involvement of the old system and teaching pattern.

4. A fairly generous time commitment is required for the development of quality programs using educational technology.

5. Some educators feel more comfortable with a traditional classroom setting and smaller numbers of students, and they generally rely on the force of their personalities to direct the learning situation. (pp. 13-14)

Although the expanding capacities and capabilities of computers and other devices are used in improving the teaching process, the use of instructional technology has been receiving only slight attention in higher education. Therefore, in higher education, the lecture continues to be dominant in the teaching process to overcome instructional problems.

Richards (1974) conducted a study of faculty resistance of the use of instructional technology, about administrative leadership in utilizing technological devices and materials, about the pedagogical principles on which such utilization could be based, and about how the educational values of using instructional technology were evaluated. He summed up the preceding study by stating:

Only a small minority of teachers in each institution use instructional media and materials, and nearly all systems
are underused by faculty and students. There is widespread faculty resistance because many teachers perceive instructional technology as a threat to their jobs; and/or it's too much bother to adapt course content to instructional media, or to manipulate equipment, or prepare software for self-instruction. Many teachers know little about the potential of modern media and machines and do not care to learn. And many teachers criticize their administration which they say often proclaims its desire for and encouragement of innovation, but fails to support, appreciate, or reward—physically, financially, or through reduced loads—innovative users of instructional technology. (p. 482)

Purdy (1975) postulated:

Those faculty who felt more comfortable with a traditional classroom, generally, relied on force of personality to direct the learning situation, and faculty who were uncomfortable lecturing found it easier to devise computer and slide-tape programs, to manipulate these materials until students demonstrated learning in a way satisfying to the teacher. (pp. 10-11)

Waggoner (1984) explained faculty resistance to the use of instructional technology, and why the lecture continues to be employed in teaching in higher education. He stated that:

1. Any proposed change means some uncertainty, and resistance is an expected consequence.

2. The technological alternative had not been widely available or affordable.

3. The lecture has been the principal and venerated means of transmitting knowledge from scholar to students.

4. The enormous growth of higher education institutions strained faculty resources. . . . The lecture, then, has come to represent the convergence of role, norm, and value in the teaching faculty member. (pp. 7-8)

The acquisition of additional techniques for the improvement of present teaching methods requires changes in teacher's attitudes not only to accept the new educational media, but also to develop his or her present skills as well as knowledge. Ack (cited in Gaff, 1975)
suggested that "change and improvement in teaching will occur only if faculty undergo personal and effective change as well as changes in cognition and skill" (p. 37).

Although there have been many studies concerned with initiating faculty's development programs for improving the present instructional conditions, the results of which have varied tremendously. This diversity is not only among faculty members, but also among institutions.

A study conducted by Margoles (1969) indicated three broad guidelines for developing an educational climate favorable for instruction through a media support program which are described as follows:

1. There are a variety of strategies for conceptualizing the formation of attitudes toward media. Therefore, media consultants should direct their attention to their clients' personal and organizational goals, the available mediated messages and equipment, those messages that offer minimum control over the professor's presentation, and those that offer minimum controls.

2. The more a professor uses media, the more he wants to locate messages that are compatible with his style of presentation. Therefore, media personnel should work with department chairmen in setting up policies for the development of a comprehensive Instructional Materials Center.

3. Before a professor will make good use of media, his attitudes toward media in general and in specific situations must be modified. Before these attitudes can be changed, the professor must see himself as distinct from his beliefs about the barriers to using media. (p. 71)

Furthermore, the investigator concluded that:

The university has an important role to play in meeting its obligation to instructional change through support system such as media services, instructional development, and instructional materials centers, the faculty is encouraged. However, the existence of such support system is predicated
upon the knowledge that the faculty has about them. The more a faculty member learns about media relating to his own special needs, the better the probability that he will acquire information that describes, evaluates, and advocates action with regard to use. (Margoles, 1969, p. 71)

Media Use and Faculty Attitudes

A number of studies have been conducted which focus upon the utilization of instructional media. Specifically, the question which focuses on teacher-resources relationships was examined.

In a comparison between the use of chalkboard and the use of transparencies, Chance (cited in Brown & Thornton, 1963) found that "faculty members showed a preference for engaging in transparency demonstration in contrast to producing chalkboard drawing. Several instructors also indicated they believed the transparencies provided a more professional appearance for the illustrations presented to the students" (p. 132).

An experimental study conducted by Macomber (cited in Reid et al., 1967) compared ITV and small-and-large-class face-to-face. It was, however, found that:

Teachers regarded ITV as a helpful aid rather than an end in itself. They felt ITV and face-to-face instruction were equal regarding the teacher's ability to animate his presentation to make an impression on students' attitudes, and to cover the course content. Teachers felt that students learned as well in ITV as in face-to-face courses, and felt that course objectives were covered at least as well if not better in ITV sections than in large but not small face-to-face sections. (pp. 125-126)

In a comparison between the use of print materials and the use of audiovisual media, J. V. Rogers (1978) concluded that "teachers feel most confident about their ability to work with print materials
and evaluate instructional resources for their own teaching, and they are moderately interested in working with audiovisual, visual, and auditory materials in collections available to them" (p. 23).

Many consistent attempts have been undertaken by a number of investigators to examine the relationships between faculty's attitudes and the use of the newer instructional media. However, it was found that "teachers seem to have more favorable attitudes toward traditional types of resources than resources which might be termed progressive. Additionally, they tend to use most those resources which are more traditionally associated with shop or lab instruction" (Finch et al., 1970, p. 38).

An investigation conducted by Purdy (1975) examined some use of instructional innovation on campus such as audio-tutorial courses, computer-assisted instruction, learning resources centers, and television. However, the researcher concluded that:

Two basic ideas or attitudes of teachers held individually and collectively toward teaching were found: (a) the first is the idea that teaching is a solo activity, rather than one that is shared or done in concert with other teachers, and (b) the second asserts that, in order to teach, the instructor must have control over the learning environment. . . . These two basic faculty perspectives toward teaching have immense implications for use of technological teaching devices. (p. 9)

Brown and Thornton (1963) explained the criticisms of the use of the new media in education by stating that:

Criticisms have followed two rather different lines. . . . One group abhors technology in education because they think it represents weak and debilitating forms of learning experience. Another group fears technology because of its strength to alter the conditions of human life and growth. (p. 13)
A study was conducted to determine the attitudes of two groups of college teachers toward the utilization of closed-circuit television. The results of the investigation indicated that a significant difference in attitudes toward teaching by closed-circuit television existed between the two groups. However, "teachers who taught by television displayed a significantly more positive attitude than did the teachers who had never taught by television" (Handleman, 1960, p. 1290). In contrast, Starlin and John (cited in Reid et al., 1967) indicated that "attitudes of faculty member toward television ranged from highly approving to strongly disapproving. It was further reported that a greater percentage of faculty members opposed rather than accepted the idea of television teaching" (p. 169).

Various researchers have reached conclusions indicating that attitudes toward the use of instructional media improved during formal studies within that area. One of these studies was conducted by Guba and Snyder (cited in Aquino, 1970) and indicated that "teachers who used instructional television had more positive attitudes toward instructional television and newer instructional media than teachers who did not use the television medium" (p. 188). However, these results confirmed the previous findings of Handleman (1960).

One investigation was primarily concerned with teacher attitudes toward audiovisual instruction. Analysis of the data indicated that the matrices utilized in determining factor-attitude relationships revealed that "no one in the negative attitude change group noted that audiovisual materials were available in amounts sufficient for their instructional needs, and no one in the positive change group
noted that audiovisual equipment and materials were not accessible to them when needed" (Aquino, 1970, p. 192).

A study was conducted to determine teacher attitudes to media teaching environments. Aquino (1974) studied this relationships and concluded that:

Those who exhibited more favorable attitudes toward audiovisual instruction were more inclined to be critical of the educational media environments within which they were employed. Teachers who possess extremely positive attitudes toward audiovisual instruction are apparently those who suffer the greater frustrations when their efforts to utilize educational media are rebuffed by environmental conditions which do not provide audiovisual equipment and materials at the times they are required. (p. 77)

Faculty attitudes have often been somewhat more negative than those of students, and in many institutions of higher education, negative attitudes of the faculty members have been the greatest impediment to the use of new media. However, Reid et al. (1967) suggested that:

When the need to use television is clearly explained and justified, for example, by increased student enrollments, or an actual shortage of faculty, there are usually sufficient numbers of good teachers who are willing to teach on television to make its use viable. It has been said that people are often down on things they are not up on. Several studies have indicated that one way of gaining increased faculty acceptance on instructional television is to involve faculty members actively in the planning and conducting of an experiment in the use of television for teaching a course in their own discipline. (p. 12)

Finch et al. (1970) concluded that:

Analysis of attitude variable revealed that teachers may view instructional resources in accordance with the personal involvement with resource preparation, selection, presentation, and application. The results seemed to suggest that resources may be classified in accordance with the aforementioned teacher perceptions. (p. 38)
Much of the criticism is directed toward the misuses of many instructional media in each area of disciplines. Dressel and Marcus (1982) postulated that "teachers become enthusiastic about the availability of hardware without having thought how it might best be used" (p. 81).

Factors Influencing Media Utilization

As noted earlier, the evaluations of different kinds of instructional media gave an important indication that shows the advantages of different forms of instructional media hardware and software over traditional method of instruction in both college and university level. The use of more technological devices and the accompanying software in different instructional situations is considered to be a useful alternative to traditional methods of instruction. Certainly, there can be no doubt that properly designed instructional media can enhance and promote learning and support teacher-led instruction, but its effectiveness depends on the teachers.

The utilization of instructional media in colleges and universities by instructors in classroom setting has been studied by different researchers in many locations to investigate factors that influence the use of different forms of instructional media hardware and software. Some of these studies were based on the assumption postulated by Welch (1975), who theorized that "a teacher's attitude toward media is not a major factor in determining utilization of instructional media" (p. 5795A). Consequently, earlier studies following this assumption have been undertaken to examine the
relationship between faculty attitude and the use of instructional media. Several studies (Calhoun, 1977; Knowlton & Hawes, 1962, Venn, 1969) have found no significant relationship between teachers' attitudes and the use of instructional media. However, other studies (Ajibero, 1985; El-Sharkawy, 1983; Gagne & Briggs, 1974; Miles, 1973; Moore & Hunt, 1980; Morton, 1980; Moshaikah, 1983; Moss, 1979; Proctor, 1983; Soremekun, 1979; Stephens, 1972; Thomson, 1975; Tibbs, 1975; Wimberly, 1975) found a positive relationship existed between media utilization and teachers' attitudes toward instructional technology (see Table 1).

As noted earlier, Proctor (1983) has theorized that "if media were not used to teach a lesson, it is because of attitudinally based reasons rather than a perceived barrier of lack of the appropriate knowledge of how to use media" (p. 1307A).

Several studies were primarily concerned with the identification of other factors that influence the use of instructional media. These factors were: (a) type of institution, (b) subject field, (c) academic rank, (d) degree held, (e) teaching experience, (f) formal courses in educational media, and (g) in-service media training programs.

**Type of Institution**

Several studies have been undertaken by different researchers in many locations to determine if there is a relationship between type of institution and the use of instructional media by faculty members in higher education (see Table 2).
<table>
<thead>
<tr>
<th>Study</th>
<th>Positive relationship (PR)</th>
<th>No relationship (NR)</th>
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<tr>
<td>Ajibero, 1985</td>
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<td>Moore &amp; Hunt, 1980</td>
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<td>Moss, 1979</td>
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<td>Wimberly, 1975</td>
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Table 2
Results of Studies Examining the Relationship Between Type of Institutions and Media Use

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<th>Study</th>
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<tr>
<td>R. C. Allen, 1974</td>
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<td>Bender, 1980</td>
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<td>Mims, 1984</td>
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<td>Stephens, 1972</td>
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A study reported by Bender (1980) evaluated the learning resources and the instructional programs in community colleges. However, according to statistics examined, the proportion of community college faculty using mediated instruction had increased over the previous 3 years. All seven of the institutions reported that more faculty were relying on the use of media, an indication that mediated instruction will continue to grow (p. 148). In contrast with the preceding finding by Bender (1980), Mims (1984) found that two-year college instructors were very traditional in their utilization of instructional media.

Similar research efforts have attempted to evaluate and compare the use of instructional media at public colleges with use in public universities. Consequently, in a study by R. C. Allen (1974), it was concluded that junior colleges should make additional efforts to
Improve the quality of their educational media programs.

Additionally, an investigation was conducted by Abdi (1981) to identify differences in media use among faculty at selected colleges and universities. The survey instrument generated data reflecting a clear trend toward greater media use by community college faculty than by their colleagues at the chosen universities. The data disclosed that 100% of the community college faculty reported some use of instructional media during the prior term, while 84% of university faculty reported using media in this period. The survey results suggest, therefore, that underutilization of instructional media is greater in universities than in community colleges. A larger number of university faculty identified themselves as nonusers of instructional media, compared to community college faculty; and of the university faculty who acknowledged using media, their reported level of use was substantially less than faculty users at community colleges.

Similarly, a study by MacKenzie, Eraut, and Jones (cited in Ajibero, 1985) reported that the university as an institution has been found to offer strong resistance toward the use of instructional media.

The underutilization of instructional media in higher education was discussed by several studies. However, in their reports, Jabker and Halinski (1978) and Waggoner (1984) pointed out that teaching, not research, is the central focus in colleges and universities. For this reason, the faculty's time is devoted to teaching not to experimenting with educational media. Consequently, this appears to be the
fundamental explanation of why new media technologies have not achieved more widespread application in the university's instruction. Moreover, they indicated that colleges and universities should encourage faculty members to experiment with educational media as a means of increasing instructional effectiveness. Also, they mentioned that part of the faculty members' reward system should be based upon research that focuses on the effectiveness of new media technology and its relevant to the teaching-learning process.

Subject Field

A study was primarily concerned with teacher attitude toward instructional resources. Kelley (1960) studied several factors related to teacher attitude toward audiovisual materials. It was reported that "the subject matter area in which one teaches is not a significant factor for determining attitudes toward the use of audiovisual materials" (p. 121).

The preceding finding by Kelley (1960) was not supported by Grant, 1970; Hafton, 1981; S. Sikkhabandit, 1977; Simms, 1977; and Welch, 1975, who found in their studies that subject areas taught is a factor in the extent to which teachers utilized instructional media, hardware and software (see Table 3). In another investigation, the results indicated that "other than audiovisual and art education, subject areas taught by faculty members do not lead to differences in the use of instructional media" (Moshaikeh, 1983, p. 2863A).
Table 3

Results of Studies Examining the Relationship Between Subject Area Taught and Media Use

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</table>

Numerous studies have been conducted by different investigators to examine if a difference exists between the subject areas taught and the use of instructional media. McIntyre (cited in Reid et al., 1967) found that "the Dental school faculty had significant higher scores than the rest of the universities in every AV investigated" (p. 129).

Furthermore, in an investigation, Wimberly (1975) found that "teachers viewed media more positively for social science than for science, language arts and mathematics, in that order" (p. 7792A).
In contrast with these findings, S. C. Sikkhabandit (1977) found that "closed-circuit television (CCTV) tended to be used more by college instructors who taught English" (p. 3230A). This finding was supported by Grant (1970), who found that "there were more acceptors of the newer educational media than rejecters in the subject area of English" (p. 676A).

Wimberly's (1975) findings were supported by Abdi (1981), who concluded that "use of media is significantly related to field of academic specialization. Natural science faculty and social science faculty use media more often than instructors in language arts" (p. 2448). Considering the subject matter taught, Librero's (1982) study of audiovisual media utilization showed that "faculty members of the School of Education in Bloomington are extensive users of a wide variety of audiovisual media" (p. 2985A). This finding supported the study of S. C. Sikkhabandit (1977), who found that "closed circuit television (CCTV) tended to be used more by college instructors who taught education" (p. 3230A). Mafton (1981) concluded in a study on the utilization of instructional television that "subject matter taught appears to be a factor to which public school teachers utilized instructional television" (p. 2452A). Moreover, an investigation conducted by Godfrey (1967) examined the state of audiovisual technology for the years 1961 to 1966. One of the important findings of this investigation was that the use of instructional resources is related to the subject taught.

Various researchers have reached conclusions indicating that the use of instructional media is related to some factors that influence
their use by instructors. However, the preceding findings of these investigations seem that they have lacked consistency regarding which subject matter taught influences the utilization of the instructional media and materials. However, the importance of this factor has been emphasized by great numbers of these investigators. Therefore, this factor was investigated in this study.

**Academic Rank**

Numerous studies have been undertaken to examine the importance of academic rank as a factor that can be investigated to identify its affect upon the use of instructional media. However, the most impressive aspect of such studies is the inconsistency of the results (see Table 4).

**Table 4**

Results of Studies Examining the Relationship Between Academic Rank and Media Use

<table>
<thead>
<tr>
<th>Study</th>
<th>Positive relationship (PR)</th>
<th>No relationship (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>McIntyre, 1963</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Calhoun, 1977</td>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>

McIntyre's (1963) study found that "there is a high degree of correlation between faculty rank and quantitative use of new media" (p. 141). This finding was not supported by Calhoun (1977), who
found that "significant findings were not found regarding the academic rank" (p. 3226A).

**Degree Held**

An abundance of literature has been published concerning the degree held by those faculty members who work with colleges and universities (see Table 5). Welch (1975) found that "highest degree held by teachers is inconsequential to the understanding of utilization of instructional media" (p. 5795A). A study of S. C. Sikkhabandit (1977) indicates that "adopters and non-adopters of instructional television do not differ with regard to degree held" (p. 3230A). Data generated from Simms's (1977) study showed that "teachers with highest degrees were the most infrequent users of audiovisual materials in their teaching courses" (p. 3349A). An investigation was concerned with identifying factors affecting faculty use of instructional media. The research reported indicates that the frequency of use is related to the degree held by faculty members. Abdi (1981) found that "71% of the responses disclosed that frequency of use is greater among faculty with master's degrees than with doctoral degrees" (p. 2448A). Considering the degree held by faculty members as a factor related to the use of instructional media, Moshaikhe (1983) found that "faculty members with Bachelor's degrees are more likely to use instructional media than those with Master's or Doctoral degrees" (p. 2863A).
Table 5
Results of Studies Examining the Relationship Between Degree Held and Media Use

<table>
<thead>
<tr>
<th>Study</th>
<th>Positive relationship (PR)</th>
<th>No relationship (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdi, 1981</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Moshaikeh, 1983</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>S. C. Sikkhabandit, 1977</td>
<td>NR</td>
<td></td>
</tr>
<tr>
<td>Simms, 1977</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Stephens, 1972</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Welch, 1975</td>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>

The findings of previous investigations seem to hold contradictory views regarding the degree held and its affect upon the utilization of instructional media.

Teaching Experience

Kelley (1960), Moshaikeh (1983), and Tibbs (1975), in their studies, found that there was no significant relationship between instructional media use by faculty members and years of teaching experience. In contrast with the preceding researchers' findings, Mims (1984) supported several other researchers (Abdi, 1981; Handleman, 1960; Grant, 1970; Mafton, 1981; Morton, 1980; S. C. Sikkhabandit, 1977; Stephens, 1972) by stating that "the utilization of instructional media is correlated with teaching experience"
Hence, it was found that "closed-circuit television (CCTV) tended to be used more by college instructors with less than 10 years of teaching experience" (S. C. Sikkhabandit, 1977, p. 3230A). Further, Stephens (1972) concluded that those faculty members with more experience tended to have higher media utilization rates (see Table 6).

Table 6

<table>
<thead>
<tr>
<th>Study</th>
<th>Positive relationship (PR)</th>
<th>No relationship (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdi, 1981</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Grant, 1970</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Handleman, 1960</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Kelley, 1960</td>
<td>PR</td>
<td>NR</td>
</tr>
<tr>
<td>Mafton, 1981</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Mims, 1984</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Morton, 1980</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Moshaikheh, 1983</td>
<td>PR</td>
<td>NR</td>
</tr>
<tr>
<td>Stephens, 1972</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Tibbs, 1975</td>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>
Formal Courses

Numerous studies (Abdi, 1981; R. M. Davis, 1983; Mafton, 1981; Mims, 1984; Morton, 1980; Simms, 1977) have examined the factors related to teacher use of instructional media. Results of these different studies suggest that the use of instructional media is related to the number of courses taken by instructors in educational media. Therefore, formal training in media is considered a factor in determining the use of instructional media (see Table 7).

Table 7
Results of Studies Examining the Relationship Between Formal Courses and Media Use

<table>
<thead>
<tr>
<th>Study</th>
<th>Positive relationship (PR)</th>
<th>No relationship (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdi, 1981</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>R. M. Davis, 1983</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Mafton, 1981</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Mims, 1984</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Morton, 1980</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Simms, 1977</td>
<td>PR</td>
<td></td>
</tr>
</tbody>
</table>

In-Service Media Training Programs

Growth in acceptance of the new innovation by colleges and universities has been influenced by curriculum programming and instructional development for improving the teaching-learning
process. Therefore, the improvement of college and university teaching through the application of new technology relies on a well-equipped library with different types of materials and equipment whether under unified or integrated systems. The placement of media materials and equipment for more effective utilization is required to stimulate demand for professional growth and development for both faculty members and media personnel as well.

Changes in media, materials, curriculum, and conceptions of the role of the teacher all suggest the need for more effective continuing educational training for all of the levels of education.

Gaff (1975) indicated that there are genuine differences of opinion concerning what is wrong with instruction and what can be done to help faculty improve it. He mentioned that:

- Some persons assume that faculty are too narrow and limited in their knowledge and experience; they seek to help faculty extend the range of their knowledge and awareness to other academic disciplines and the community. Others held that faculty are not knowledgeable about higher education in general, or teaching and learning in particular, and seek to promote such learning. Still other persons assert that instruction would be improved if faculty possessed more skills for teaching students; some programs emphasize skill development. Some critics argue that cognitive knowledge or additional skills will produce little change in faculty unless they also experience affective growth, which receives emphasis in certain programs. Some believe that faculty need to become more aware of their own teaching behavior, and there are several efforts to give them useful feedback. And still others assert that the concern ought not to be with teachers and teaching at all but with students and learning. (pp. 29-30)

Numerous studies reported by individual researchers showed evidence of more care in improving teachers' skills in utilization of instructional media (Ajibero, 1985; Berman, 1969; Kozma, 1978, Moore...
& Hunt, 1980; Moss, 1979). A study conducted by S. Sikkhabandit (1977) showed that "sixty-one percent of 222 college instructors had no audiovisual in-service training experience" (p. 3231A). However, in a study by Khosh-Chashmi (1983) found that "most teachers agree that they can be more effective in their instruction if they know more about proper utilization of educational media" (p. 964A). In another study, it was reported that "respondents with advanced degrees (B.A., M.A., Ph.D., or Ed.D.) perceived the media competencies to be more important than those without such qualification" (Ogedengbe, 1983, p. 1306A).

Considering the importance of media competency, Brown et al. (1972) indicated that:

Some of the more important teacher competencies required for effective utilization of instructional media include: (a) understanding of the behavioral processes involved in communication and learning, (b) knowing media characteristics and capabilities, (c) playing a responsible and effective role in planning and implementing instructional systems, (d) evaluating and conducting or participating in experimental studies of teaching and learning, (e) knowing about available materials and their sources, making appropriate selections of materials for specific instructional objectives, and (f) having the necessary skills to operate and use instructional media devices. (p. 344)

One investigation was primarily concerned with which skills are necessary for prospective teachers to possess. The results of a study by Freiburger (1981) indicate that "those skills felt most appropriate are those which are universally accepted by the media profession and those which do not require the classroom teacher to be proficient in either production or technical skills" (p. 1447A). Further, numerous investigations have been undertaken to investigate
whether the in-service programs actually produce changes in classroom behavior. Specifically, whether specific media competencies have an affect upon the use of instructional media. For example, Evans, Smith, and Colville's study (cited in Brown & Thornton, 1963) found that "attitudes of professors who participate in instructional television (ITV) programming toward television as a teaching medium changed dramatically in a favorable direction" (p. 54). However, the importance of an in-service program and its influences on the utilization of instructional media has been emphasized by a number of investigators. In recent years, Mafton (1981) postulated that "there is a correlation between utilization of instructional television and the number of credit hours completed in instructional media in-service" (p. 2452A). An investigation was primarily concerned with the characteristics of acceptors and rejectors of the newer educational media. However, Grant (1970) concluded in this study that:

1. There was a positive mean change of attitude toward audiovisual media for the 21-60 age group. There was negative mean attitude change for the 61-70 age group. The Wisconsin Audiovisual Demonstration seemed to be influential in the improvement of attitude toward audiovisual media.

2. There was a negative mean attitude change toward audiovisual media for respondents with 36 or more years of teaching experience. (p. 676A)

Similarly, Issa-Fullata (1983) found that "teachers' response to workshop questionnaire showed that those teachers seem to have developed a positive attitude toward educational technology and instructional media" (p. 2862A).
The relationship between teachers' training and the use of educational media was investigated by Al-Debassi (1984). It was found that "teachers with training in educational media used significantly more media than teachers without training" (p. 2332A). Further, a study of faculty development and the adoption and diffusion of classroom innovations was done by Kozma (1978). The goals of a faculty development program were to increase the use of instructional technologies by faculty members and to involve the participants in the dissemination of these innovations to their colleagues. A selected group of 11 professors received faculty fellowships to be intensively involved in the reanalysis of their teaching. The participants contacted a large number of their colleagues to discuss instructional matters. The investigator concluded that "there is little evidence to indicate that a faculty development program such as the fellowship can be justified solely in terms of the resulting dissemination of innovations" (pp. 448-449).

Further, an investigation was conducted to examine the relationship between the utilization of audiovisual materials and teachers' competency ratings. It was found that "teachers who had had a college course in the utilization of audiovisual materials prior to graduating from college were more frequent users of audiovisual materials than were teachers who had had inservice training or a course since graduating from college" (Simms, 1977, p. 3349A).

In determining the effects of training on teaching effectiveness, Dalgaard (1977) found that:
Teaching assistant ratings of the training sessions were very favorable. They found most topics useful and generally recommended that the training program be required at least for new inexperienced untrained teaching assistants. . . . It was further reported that teaching experience alone did not caused significant changes in expert ratings of teaching assistants' teaching performance. (p. 6417A).

Similarly, a study was conducted by Dalgaard (1982); the results support the original hypothesis that "teaching experience alone does not result in more effective teaching as judged by experts. A relatively brief training program on basic teaching skills can improve teaching assistants' skills as rated by experts" (p. 49).

Generally, according to Gaff (1975), different colleges and universities have utilized the instructional development process in different ways:

Some place an emphasis on the production of learning materials that may be used in courses; others design or redesign whole courses; some help implement whole curricula by working with faculty; others seek to inform professors about various aspects of the instructional development process; and still others rely on providing consultative services to individual faculty members about a variety of issues and concerns. (p. 60)

Although faculty reluctance is widespread, there are many faculty members interested in improving their present methods of instruction by becoming involved in programs that can help them to acquire more knowledge and skills. Therefore, it is evident that in-service programs provide many opportunities for teachers with limited experience or background for enhancing their growth through continuous and a well considered planning program.

In conclusion, the most important aspect of the previous studies is the consistency of the results (see Table 8). The results of an
investigation by Guskey (1984) indicate that "evidence of change in the learning outcomes of students may be an essential element in promoting affective changes in teachers" (p. 257).

Table 8
Results of Studies Examining the Relationship Between In-Service Media Training Programs and Media Use

<table>
<thead>
<tr>
<th>Study</th>
<th>Positive relationship (PR)</th>
<th>No relationship (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ajibero, 1985</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Al-Debassi, 1984</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Berman, 1969</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Dalgaard, 1977</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Dalgaard, 1984</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Guskey, 1984</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Issa-Fullata, 1983</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Khosh-Chashmi, 1983</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Kozma, 1978</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Mafton, 1981</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Moss, 1979</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Ogedengbe, 1983</td>
<td>PR</td>
<td></td>
</tr>
<tr>
<td>Simms, 1977</td>
<td>PR</td>
<td></td>
</tr>
</tbody>
</table>
Hypotheses

The review of the literature provides a theoretical framework for the present study. This has been developed through identification and discussion of the major findings of the previous studies. However, it is necessary to research and to examine such factors and their relationships with the attitude factor that influences the utilization of instructional media.

Kerlinger (1966) stated a hypothesis that "perceptions of the traits of effective teachers are in part a function of attitudes toward education" (p. 160). However, the most important result of this investigation was that "attitudes toward education and perception of teachers are related" (p. 166). Consequently, it is one of the reasons for constructing the hypotheses of the present study. This reason was supported by Tobias (1968). The study by Tobias offered evidence that the threat of automation is of some importance in the attitudes of teachers toward educational media. "Attention should be paid to these attitudes when the teacher first comes into contact with newer media, before the attitudes become solidified and finally self-perpetuating" (p. 98).

The development of the hypotheses is based on the assumption that "if media were not used to teach a lesson, it was because of attitudinally based reasons rather than a perceived barrier or lack of the appropriate knowledge of how to use media" (Proctor, 1983, p. 1307A).
The previous assumption as well as the review of the literature led to the construction of the following hypotheses:

**Hypothesis 1:** The mean attitudes of faculty members in institutions rated by their media directors as having high quality media service programs will be greater than the mean attitudes of faculty members in institutions rated by their media directors as having low quality media service programs in regard to the use of instructional media.

**Hypothesis 2:** There is a relationship between the type of institutions and the attitudes of the faculty members toward the use of instructional media.

**Hypothesis 3:** There is a relationship between the subject areas taught by faculty members and the attitudes toward the use of instructional media.

**Hypothesis 4:** There is a relationship between the academic rank of faculty members and the attitudes toward the use of instructional media.

**Hypothesis 5:** There is a relationship between the degree held by faculty members and the attitudes toward the use of instructional media.

**Hypothesis 6:** Faculty members who have been teaching at an institution for a shorter period of time will have more favorable attitudes toward the use of instructional media than those who have a long period of time in teaching.

**Hypothesis 7:** Faculty members who have had formal courses in educational media will have more favorable attitudes toward the use
of instructional media than those faculty members who did not have formal training courses in media use.

Hypothesis 8: Faculty members who participated in in-service programs in media use will have more favorable attitudes toward the use of instructional media than those faculty members who did not participate in in-service programs in media use.

Summary

Media programs may not approach optimum level unless media collection software and the accompanying hardware, media personnel, and facilities are well designed and organized to meet instructional demands and their contributions to the total educational system in colleges and universities well appreciated as valuable teaching-learning resources.

Emergence of the learning resources center has stimulated a number of studies on its relationship with the educational programs and its necessity to support a wide variety of disciplines. A conclusion which can be drawn from the previous studies is that, even though colleges and universities have diverse policy and procedures patterns, many similarities exist in these institutions which can provide a comprehensive media services program related to institutional, instructional, and individual needs of faculty members and students. These similarities were explained previously: (a) institutional support, (b) budget (c) personnel, (d) facilities, (e) availability of and accessibility of instructional media, and (f) in-service training programs.
Additionally, several researchers have gone further, studying other factors that affect the utilization of instructional media. Numerous studies have been conducted to determine whether there is a relationship between faculty's attitudes and media utilization. Hence, a considerable number of studies have been conducted by Handleman (1960), Tobias (1968), Finch et al. (1970), Guba et al. (cited in Aquino, 1970), Miles (1973), Tibbs (1975), Wimberly (1975), Moshalkeh (1983), El-Sharkawy (1983), and Proctor (1983), who found significant relationships between instructional media use and the attitudes of faculty members toward media. In addition, many of the studies reported that faculty attitudes have often been more negative than those of students. In higher education, negative attitudes of the faculty members toward instructional media have been considered a factor that hinders innovative approaches which involve processes in teaching-learning using more nontraditional resources. The newer media are often viewed as being not essential for college teaching, and where the influence of educational technology in instructional development program has been downgraded because of the faculty members resistance.

Furthermore, reviews of relevant researches have indicated that several investigations have been undertaken to examine other factors that influence the use of instructional media. However, the studies cited earlier have been conducted to examine some variables such as type of institutions, subject areas taught by instructors, academic rank, degree held by instructors, length of teaching experience, formal courses in educational media utilization, and in-service
programs in instructional media uses.

It is apparent from a review of the literature that one of the probable reasons that hinder the use of instructional technology is the attitude of the faculty members, and its affect upon the use of instructional media.

Hence, Finch et al. (1970) stated that "the more positive a teacher's attitude is toward an instructional resource, the more likely he or she is to use the resource may indicate his or her attitude toward other resources" (pp. 39-40).
The subjects for this study consisted of media directors and faculty members from selected colleges and universities in Michigan. A list of faculty members was obtained from course catalogues and institutional directories. A simple random sample was selected from the population's list in each college and university. Hinkle, Wiersma, and Jurs (1979) defined a simple random sample as "a sample in which each member has equal probability of being selected and the selection of all members is independent of one another" (p. 123). The selection of the subjects was based on five categories of subject areas taught and related disciplines (see Table 9). This classification was also used by Arnold (1981), Frankel and Gerald (1980), Gourman (1983), and Humphrey (1980).

The research population consisted of 6 media directors and 390 faculty members representing six institutions of higher education. The selection of these institutions was determined by the quality of the media service programs in each college and university surveyed. A written questionnaire was used to determine the quality of the media programs. The questionnaire was developed by the investigator for the purpose of this study based upon an Instrument for Self-Evaluating an Educational Media Program in Colleges and Universities.
Table 9

<table>
<thead>
<tr>
<th>Categories</th>
<th>Natural sciences</th>
<th>Social sciences</th>
<th>Professional</th>
<th>Humanities</th>
<th>Fine arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Anthropology</td>
<td>Education</td>
<td>Communication</td>
<td>Art</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>Political science</td>
<td>Health related</td>
<td>English</td>
<td>Dance</td>
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</tr>
<tr>
<td>Computer science</td>
<td>History</td>
<td>Physical education</td>
<td>Language</td>
<td>Music</td>
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<tr>
<td>Geology</td>
<td>Geography</td>
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<td>Design</td>
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<tr>
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<td>Sociology</td>
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<td>Philosophy</td>
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<td>Mathematics</td>
<td>Psychology</td>
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<tr>
<td>Engineering</td>
<td>Economics</td>
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</table>
(Fulton et al., 1979). The questionnaire with a cover letter which explained the purpose of the study was distributed to each institution's media director of the LRC (see Appendices A and B). The survey instrument consisted of 30 items. These items were based on the factors that have been emphasized by many investigators as the main obstacles in the development of effective media service programs in higher education. These factors were: (a) institutional support, (b) budget, (c) media personnel, (d) facilities, (e) availability of instruction media, and (f) in-service training programs. In order to determine the quality of media service programs in these institutions, the mean and the standard deviation were used to analyze the data. Consequently, the investigator selected three institutions that have high quality media service programs and three institutions that have low quality media service programs in order to make a comparison between these institutions.

Finally, the sample size in each of the six institutions was 65 subjects randomly selected in order to cover all the number of variables in the present study.

Instrumentation

A written questionnaire was developed by the investigator for this study based upon a review of the related literature. The initial selection of the survey instrument requested information on the background of each participant in this study to determine each respondent's type of institution, subject field, academic rank, highest degree earned, number of years teaching in higher education, number
of formal courses taken in media, and attendance in in-service training programs in instructional media. In a later section, the survey instrument contained 40 items based on a review of the related literature to elicit the respondent's attitudes toward the use of instructional media. The questionnaire also provided space for written comments. A Likert scale was assigned for each response ranging from 5 to 1 with a weight of strongly agree, agree, no opinion, disagree, and strongly disagree. The scoring was reversed for negative items.

For the purpose of analysis, the questionnaire items were grouped into five categories. These categories were (a) media availability and accessibility, (b) media use, (c) desirability and applicability of educational technology, (d) media personnel cooperation and communication with faculty, and (e) necessity of in-service media training programs.

Pilot Study of the Survey Items

Before preparing the final draft of the questionnaire items, it was essential to have a pilot run to get feedback from the research subjects and other persons involved concerning the design of the study (Ary, Jacobs, & Razavieh, 1979; Borg & Gall, 1984; Wiersma, 1980). Therefore, the questionnaire was pilot tested. The pilot test was conducted using a sample of 35 faculty members. Analysis of the responses of the pilot test resulted in changes in the wording of some questions and some of the items were eliminated. It also changed the set of the questions which dealt with faculty background.
Design and Procedure

This study was designed to gain the factor attitude relationships and their affect upon media utilization. Eight independent variables were used for formulating and testing the hypotheses of this investigation.

The questionnaires were mailed to 390 faculty members by first-class mail. All questionnaires were accompanied with a cover letter which explained the purpose of the present study. Anonymity was assured to all respondents by asking them not to write their names on the questionnaires and assurance was given that the overall response was important and no individual responses would be singled out (see Appendices C and D).

A self-addressed stamped return envelope was enclosed for the return of the completed questionnaire. Of the 390 distributed questionnaires, 215 (55.13%) were returned to the researcher.

To improve this response, a follow-up letter was sent to faculty who did not respond within 3 weeks of the first mailing (see Appendix E). Ary et al. (1979) indicated that:

A planned follow-up is necessary if one is to reach the maximum percent of returns. If the questionnaire has not been returned soon after the initial mailing, a postcard reminder should be sent to the respondents. After that, a second mailing of the questionnaire along with a new cover letter is recommended. . . . The usual approach is to try to interview a small random sample of the nonrespondents for the purpose of learning something of their characteristics and obtaining their responses. (p. 178)

In addition, it was necessary to telephone faculty members who had not yet responded to the first and/or second mailing and to
request their participation in the study. After that, a second mailing of the questionnaire is recommended by Ary et al. (1979).

A total of 175 questionnaires, evenly distributed to all of the nonrespondent subjects, were mailed by first-class mail along with a self-addressed stamped envelope for the return of the completed questionnaire. The number of questionnaires distributed and returned for the different groups is illustrated in Table 10.

Table 10
Distributed and Returned Questionnaires by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of questionnaires distributed</th>
<th>Number of questionnaires returned</th>
<th>Percent returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year colleges</td>
<td>130</td>
<td>106</td>
<td>27.18</td>
</tr>
<tr>
<td>Four-year colleges</td>
<td>130</td>
<td>110</td>
<td>28.21</td>
</tr>
<tr>
<td>Universities</td>
<td>130</td>
<td>108</td>
<td>27.69</td>
</tr>
<tr>
<td>Totals</td>
<td>390</td>
<td>324</td>
<td>83.08</td>
</tr>
</tbody>
</table>

Data Analysis

The study involved eight independent variables. The independent variable is the presumed cause of the dependent variable, and the dependent variable is the consequence of the independent variable (Kerlinger, 1973). The independent variables involved in this study were: (a) the quality of media service programs in higher education institutions, (b) type of institutions, (c) subject areas taught,
(d) academic rank, (e) degree held, (f) teaching experience, (g) formal courses in educational media, and (h) in-service media training programs.

The dependent variable was the attitude of faculty members toward the use of instructional media as measured on a 5-point scale.

Null Hypotheses

Based on the research hypotheses which were stated in Chapter II, the following null hypotheses were formulated:

1. There will be no difference in the mean attitude scores between faculty members in institutions rated by their media directors as having high quality media service programs and those faculty members in institutions rated by their media directors as having low quality media service programs in regard to the use of instructional media.

2. There will be no relationship between the type of institutions and the attitudes of faculty members toward the use of instructional media.

3. There will be no relationship between the subject areas taught by faculty members and the attitudes toward the use of instructional media.

4. There will be no relationship between the academic rank of faculty members and the attitudes toward the use of instructional media.

5. There will be no relationship between the degree held by faculty members and the attitudes toward the use of instructional media.
media.

6. There will be no difference in the attitudes of faculty members in regard to their use of instructional media based on their teaching experiences.

7. There will be no difference in the attitudes of faculty members in regard to their use of instructional media based on their formal courses taken in educational media.

8. There will be no difference in the attitudes of faculty members in regard to their use of instructional media based on their participation in in-service media training programs in media use.

One-way analysis of variance (ANOVA) was used to test Hypotheses 2, 3, 4, and 5. A t test for independent samples means was used to test Hypotheses 1, 6, 7, and 8. For reporting of the study results, the researcher selected the .05 alpha level. The findings of the study are discussed in Chapter IV.
CHAPTER IV

FINDINGS

The purpose of this chapter is to report the results of a statistical analysis of data collected in this research study for the testing of the hypotheses. Results of the study are reported through (a) comparison between high and low quality media service programs, (b) analysis of the factors and data questionnaire using all the five categories, and (c) analysis of the factors and data questionnaire using only the second category of the questionnaire items. Finally, the section on the discussion reviews the results and relates the research outcome to the overall theoretical framework of the study.

Research Results

The research results are presented in the following manner: (a) the testing of the research hypotheses, (b) the analysis of data, and (c) a general discussion of the hypotheses and data.

Hypothesis 1

The mean attitudes of faculty members in institutions rated by their media directors as having high quality media service programs will be greater than the mean attitudes of faculty members in institutions rated by their media directors as having low quality media service programs in regard to the use of instructional media (see
Table 11. In order to compare the data collected, four groups were tested to determine differences between and/or among the variables.

Table 11
Mean and Standard Deviation of Media Service Programs in Colleges and Universities
(N = 6)

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalamazoo Valley Community College</td>
<td>1</td>
<td>4.63&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.03</td>
</tr>
<tr>
<td>Kellogg Community College</td>
<td>1</td>
<td>3.30&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.19</td>
</tr>
<tr>
<td>Four-year colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferris State College</td>
<td>1</td>
<td>3.46&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.53</td>
</tr>
<tr>
<td>Grand Valley State College</td>
<td>1</td>
<td>3.23&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.04</td>
</tr>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Michigan University</td>
<td>1</td>
<td>3.60&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.28</td>
</tr>
<tr>
<td>Western Michigan University</td>
<td>1</td>
<td>3.50&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.20</td>
</tr>
</tbody>
</table>

<sup>a</sup>Higher quality media service programs.  <sup>b</sup>Lower quality media service programs.

The null hypothesis stated that no difference would be found between the mean scores in the attitudes of faculty members in institutions rated as having high quality media service programs and the attitudes of those faculty members in institutions rated as having low quality media service programs in regard to the use of instructional media. The alternate hypothesis was directional and stated that a significant difference existed in the positive direction of
those faculty members in institutions rated as having high quality media service programs.

**Group 1**

**Two-year colleges.** The analysis of mean scores (see Table 12) suggests an important difference exists in the attitudes toward the use of instructional media between subjects who have higher quality media service programs when compared to those who have lower quality media service programs ($t = 3.43, df = 104, p = .001$).

### Table 12

**Comparison Between the Quality of Media Service Programs and Attitudes of Faculty Members Toward the Use of Instructional Media**

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>56</td>
<td>150.4</td>
<td>14.69</td>
</tr>
<tr>
<td>Low</td>
<td>50</td>
<td>141.1</td>
<td>13.00</td>
</tr>
</tbody>
</table>

*Note. N = 106. All categories = 40 items.*

Since the observed value of the $t$ test (3.43) exceeded the critical value of $t$ (1.66), the null hypothesis was rejected at the .05 level of significance. The results supported the positive direction of the alternate hypothesis. It can be concluded that the quality of the media service programs did guarantee the actual use of instructional media, specifically in two-year colleges. The analysis of the data indicated that faculty members in two-year colleges were
relying on the use of instructional media in their teaching areas in those institutions that have high quality media service programs.

**Group 2**

*Four-year colleges.* The data analysis results shown in Table 13 indicate that the observed value of the test statistic ($t = 1.01$, $df = 108$, $p = .32$) was less than the critical value of the test statistic (1.66) at the .05 level of significance; thus, the null hypothesis of no difference was not rejected. It can be concluded, therefore, that there was no difference between the quality of the media service programs and the attitudes of faculty members toward the use of instructional media.

**Table 13**

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>58</td>
<td>146.4</td>
<td>15.82</td>
</tr>
<tr>
<td>Low</td>
<td>52</td>
<td>143.6</td>
<td>12.15</td>
</tr>
</tbody>
</table>

*Note.* $N = 110$. All categories = 40 items.

**Group 3**

*Universities.* The data analysis results shown in Table 14 indicate that the observed value of the test statistic ($t = 2.10$, $df = 108$, $p = .036$) was greater than the critical value of the test statistic (1.66) at the .05 level of significance; thus, the null hypothesis of no difference was rejected. It can be concluded, therefore, that there was a difference between the quality of the media service programs and the attitudes of faculty members toward the use of instructional media.
\( df = 106, p = .03 \) exceeded the critical value of the test statistic (1.66) at the .05 level of significance; thus, the null hypothesis of no difference was rejected. It can be concluded, therefore, that there was a difference between the quality of media service programs and the attitudes of faculty members toward the use of instructional media. At the university level the research hypothesis was accepted; and thus, high quality of media service programs was significantly associated with faculty members' utilization of instructional media.

Table 14

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>48</td>
<td>142.6</td>
<td>14.49</td>
</tr>
<tr>
<td>Low</td>
<td>60</td>
<td>137.0</td>
<td>12.99</td>
</tr>
</tbody>
</table>

Note. \( N = 108 \). All categories = 40 items.

Group 4

Comparison between three institutions rated as having high quality media service programs and three institutions rated as having low quality media service programs was done to test the null hypothesis of no difference between the two groups against an alternate hypothesis which stated that a significant difference existed in the...
positive direction of those institutions rated as having high quality media service programs (see Table 15).

Table 15

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>162</td>
<td>146.6</td>
<td>15.28</td>
</tr>
<tr>
<td>Low</td>
<td>162</td>
<td>140.4</td>
<td>12.95</td>
</tr>
</tbody>
</table>

Note. Three institutions rated as high. Three institutions rated as low. N = 324. All categories = 40 items.

Since the observed value of the test statistic ($t = 3.96$, $df = 322$, $p = .000$) was greater than the critical value of the test statistic (1.65) at the .05 level of significance, the null hypothesis of no difference was rejected. It can be concluded that there was a difference between the quality of media service programs and the attitudes of faculty members toward the use of instructional media.

Hypothesis 2

There is a relationship between the type of institution and the attitudes of faculty members toward the use of instructional media.

The null hypothesis stated that no relationship would be found between the type of institution and faculty members' attitudes toward the use of instructional media. The alternate hypothesis conjectured
that there would be at least one mean that differed from the others.

The data shown in Table 16 indicate that the $F$ value of 6.58 reflected a probability of .002, which was less than the .05 level of significance; thus, the null hypothesis of no relationship was rejected in favor of the alternate hypothesis. It can be concluded that there was a relationship between the type of institution and the attitudes of faculty members toward the use of instructional media.

Table 16

One-Way Analysis of Variance of Relationship Between Type of Institutions and Faculty Members' Attitudes Toward the Use of Media

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year colleges</td>
<td>106</td>
<td>146.0</td>
<td>14.62</td>
</tr>
<tr>
<td>Four-year colleges</td>
<td>110</td>
<td>145.1</td>
<td>14.21</td>
</tr>
<tr>
<td>Universities</td>
<td>108</td>
<td>139.5</td>
<td>13.89</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>$F$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2</td>
<td>1335.0</td>
<td>6.58</td>
<td>.002</td>
</tr>
<tr>
<td>Within</td>
<td>321</td>
<td>202.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $N = 324$. $F$ critical value = 3.024. All categories = 40 items.

Hypothesis 3

There is a relationship between the subject areas taught by faculty members and the attitudes toward the use of instructional
Testing the null hypothesis of no significant relationship between the five subject areas taught by faculty members and their attitudes toward the use of instructional media was done against an alternate hypothesis which indicated that there would be at least one pair or a combination of population means that would differ.

An analysis of Table 17 illustrates the data which influenced the decision of rejecting the null hypothesis. Since the probability ($F = 10.62, df = 4/319, p = .000$) was less than the alpha .05 level of significance, the null hypothesis of no relationship between group means was rejected. It can be concluded, therefore, that there was a significant relationship which existed between the subject areas taught by faculty members and the attitudes toward the use of instructional media.

Hypothesis 4

There is a relationship between the academic rank of faculty members and the attitudes toward the use of instructional media.

While the null hypothesis stated there would be no significant relationship between the four groups, the alternate hypothesis conjectured that there would be at least one pair or a combination of population means which would differ.

Table 18 contains the data upon which analysis of this variable was made. Since the observed value of the test statistic ($F = 3.49, df = 3/320, p = .02$) exceeded the critical value at the .05 level of significance, the null hypothesis of no relationship between academic
rank and faculty attitudes toward the use of instructional media was rejected and the alternate research hypothesis was held as tenable. Therefore, the analysis of the data supported the contention of the research hypothesis that academic rank was related to the attitudes of faculty members toward the use of instructional media.

Table 17
One-Way Analysis of Variance of Relationship Between Subject Areas and Faculty Attitudes Toward the Use of Instructional Media

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social sciences</td>
<td>63</td>
<td>137.0</td>
<td>13.87</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>71</td>
<td>150.2</td>
<td>13.75</td>
</tr>
<tr>
<td>Professional</td>
<td>69</td>
<td>148.0</td>
<td>13.32</td>
</tr>
<tr>
<td>Humanities</td>
<td>64</td>
<td>142.0</td>
<td>13.42</td>
</tr>
<tr>
<td>Fine arts</td>
<td>57</td>
<td>140.9</td>
<td>13.06</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>4</td>
<td>1935.0</td>
<td>10.62</td>
<td>.000</td>
</tr>
<tr>
<td>Within</td>
<td>319</td>
<td>182.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 324. F critical value = 2.40. All categories = 40 items.

Hypothesis 5

There is a relationship between the degree held by faculty members and the attitudes toward the use of instructional media.
Table 18

One-Way Analysis of Variance of Relationship Between Academic Rank and Faculty Attitudes Toward the Use of Instructional Media

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>61</td>
<td>140.2</td>
<td>15.19</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>77</td>
<td>145.2</td>
<td>14.55</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>73</td>
<td>140.8</td>
<td>13.47</td>
</tr>
<tr>
<td>Instructor</td>
<td>113</td>
<td>146.1</td>
<td>14.10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>3</td>
<td>712.6</td>
<td>3.49</td>
<td>.02</td>
</tr>
<tr>
<td>Within</td>
<td>320</td>
<td>204.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 324. F critical value = 2.63. All categories = 40 items.

The null hypothesis stated that no relationship would be found between the degree held and the attitudes toward the use of instructional media.

An analysis of Table 19 illustrates the data which influenced the decision of failing to reject the null hypothesis. Since the probability (F = 2.61, df = 1/322, p = .11) was greater than the alpha .05 level of significance, the null hypothesis of no relationship between group means was not rejected. It can be concluded, therefore, that there was no relationship between the degree held by faculty members and their attitudes toward the use of instructional media.
Table 19

One-Way Analysis of Variance of Relationship Between Degree Held and Faculty Attitudes Toward the Use of Instructional Media

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>155</td>
<td>145.0</td>
<td>14.31</td>
</tr>
<tr>
<td>Master</td>
<td>169</td>
<td>142.4</td>
<td>14.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>1</td>
<td>540.7</td>
<td>1.62</td>
<td>.11</td>
</tr>
<tr>
<td>Within</td>
<td>322</td>
<td>206.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 324. F critical value = 3.87. All categories = 40 items.

Hypothesis 6

Faculty members who have been teaching at an institution for a shorter period of time will have more favorable attitudes toward the use of instructional media than those who have taught for a long period of time.

The null hypothesis which stated that no difference would be found between the two groups in regard to their attitudes toward the use of instructional media was tested against an alternate hypothesis which was stated in a positive direction and anticipated to be statistically significant at an alpha level of .05.

Differences in the mean scores were observed in the attitudes toward the use of instructional media between subjects who have been
teaching for a shorter period of time and those subjects who have been teaching for a long period of time (see Table 20) ($t = 2.87$, $df = 322$, $p = .004$).

Since the observed value of the $t$ test (1.87) exceeded the critical value of $t$ (1.65) in this one-tailed test, the null hypothesis of no difference was rejected in favor of the alternate hypothesis at the .05 alpha level. It can be concluded that subjects who have been teaching for a shorter period of time showed favorable attitudes toward the use of instructional media compared to those subjects who have a long period of time in teaching.

**Table 20**

Years of Teaching Compared to Faculty Attitudes

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10 years</td>
<td>155</td>
<td>146.0</td>
<td>14.24</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>169</td>
<td>141.4</td>
<td>14.35</td>
</tr>
</tbody>
</table>

**Note.** $N = 324$. All categories = 40 items.

**Hypothesis 7**

Faculty members who have had formal courses in educational media will have more favorable attitudes toward the use of instructional media than those faculty members who did not have formal courses in educational media.
The null hypothesis proposed that there was no difference between the two groups in regard to their attitudes toward the use of instructional media. The alternate hypothesis was directional and stated that a significant difference existed in the positive direction of those who had formal courses at an alpha level of .05.

Differences between the mean scores of the attitudes toward the use of instructional media ($t = 9.07$, $df = 322$, $p = .000$) for the two groups were observed (see Table 21).

Table 21
Formal Courses Compared to Faculty Attitudes Toward the Use of Instructional Media

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taken formal courses</td>
<td>166</td>
<td>149.9</td>
<td>12.51</td>
</tr>
<tr>
<td>Not taken formal courses</td>
<td>158</td>
<td>136.8</td>
<td>13.36</td>
</tr>
</tbody>
</table>

Note. $N = 324$. All categories = 40 items.

Since the observed value of the $t$ test (9.07) exceeded the critical value of the $t$ test (1.65), the null hypothesis was rejected at the .05 level of significance. It can be concluded that subjects who have had formal courses in educational media demonstrated positive attitudes toward the use of instructional media compared to those who did not have formal courses in the same field.
Hypothesis 8

Faculty members who participated in in-service programs in media use will have more favorable attitudes toward the use of instructional media than those faculty members who did not participate in in-service programs in media use.

The null hypothesis stated that no difference would be found between the mean scores in the attitudes toward the use of instructional media by those subjects who participated in in-service programs and those who did not. Testing of the null was done against an alternate which was in the direction of those who participated in in-service programs.

A difference was observed in the attitude mean scores between subjects who participated in in-service programs compared to those subjects who did not (see Table 22) ($t = 6.60$, $df = 322$, $p = .000$). Since the observed value of the $t$ test (6.60) exceeded the critical value of $t$ (1.65), the research hypothesis was accepted at the .05 alpha level. In this one-tailed test, the null hypothesis of no difference was rejected in favor of the alternate hypothesis. It can be concluded that faculty members who participated in in-service programs demonstrated more positive attitudes toward the use of instructional media than those faculty members who did not.

Following the testing of the second question and related hypotheses using all five categories presented in the faculty questionnaire on the use of instructional media, the data were analyzed by using only the second category (see Appendix D) and computed to
determine whether or not the results supported the data collected from the total categories of the questionnaire.

Table 22

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>170</td>
<td>148.3</td>
<td>14.18</td>
</tr>
<tr>
<td>Nonparticipants</td>
<td>154</td>
<td>138.3</td>
<td>12.86</td>
</tr>
</tbody>
</table>

Note. N = 324. All categories = 40 items.

Hypothesis 2

There is a relationship between the type of institution and the attitudes of faculty members toward the use of instructional media.

The null hypothesis which proposed that there was no relationship between the three groups of institutions in regard to the attitudes of faculty members toward the use of instructional media was tested against an alternate hypothesis which indicated that at least one pair or a combination of population means would differ.

The data analysis results shown in Table 23 indicated that the observed value of the test statistic ($F = 2.88$, $df = 2/321$, $p = .058$) was less than the critical value of the test statistic at the .05 level of significance, so the null hypothesis of no relationship was not rejected. It can be concluded, therefore, that there was no relationship between the type of institutions and faculty members'
attitudes toward the use of instructional media. There was no strong support for rejecting the research hypothesis. The probability ($F = 2.88, df = 2/321, p = .058$) was very close to the .05 level of significance.

Table 23

One-Way Analysis of Variance of Relationship Between Type of Institutions and Faculty Attitudes Toward the Use of Instructional Media (Category 2)

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year colleges</td>
<td>106</td>
<td>49.96</td>
<td>8.18</td>
</tr>
<tr>
<td>Four-year colleges</td>
<td>110</td>
<td>49.92</td>
<td>8.32</td>
</tr>
<tr>
<td>Universities</td>
<td>108</td>
<td>47.56</td>
<td>8.78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2</td>
<td>204.70</td>
<td>2.88</td>
<td>.06</td>
</tr>
<tr>
<td>Within</td>
<td>321</td>
<td>71.09</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Hypothesis 3

There is a relationship between the subject areas taught by faculty members and the attitudes toward the use of instructional media.

While the null hypothesis stated there would be no significant relationship between the five groups, the alternate conjectured that
there would be at least one pair or a combination of population means which would differ.

Since the observed value of the test statistic \( F = 0.88, \, df = 4/319, \, p = .48 \) was less than the critical value of the test statistic at the .05 level of significance, the null hypothesis was not rejected. It can be concluded, therefore, that there was no relationship between subject areas taught and faculty members' attitudes toward the use of instructional media (see Table 24).

Table 24

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social sciences</td>
<td>63</td>
<td>47.98</td>
<td>9.30</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>71</td>
<td>48.66</td>
<td>8.21</td>
</tr>
<tr>
<td>Professional</td>
<td>69</td>
<td>50.55</td>
<td>8.14</td>
</tr>
<tr>
<td>Humanities</td>
<td>64</td>
<td>49.48</td>
<td>8.13</td>
</tr>
<tr>
<td>Fine arts</td>
<td>57</td>
<td>48.77</td>
<td>8.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>4</td>
<td>63.21</td>
<td>0.88</td>
<td>.48</td>
</tr>
<tr>
<td>Within</td>
<td>319</td>
<td>71.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \( N = 324. \) \( F \) critical value = 2.40. Category 2 contains 14 items.
Hypothesis 4

There is a relationship between the academic rank of faculty members and the attitudes toward the use of instructional media.

The null hypothesis which proposed that there was no significant relationship between the four groups was tested against an alternate hypothesis which indicated that at least one pair or a combination of population means would differ.

In the testing of this hypothesis, the observed value of the test statistic \( F = 1.61, \text{df} = 3/320, p = .18 \) did not exceed the critical value of the test statistic, and so the null hypothesis was retained as a tenable value. In other words, the null hypothesis was not rejected at the .05 level of significance. It can be concluded that the academic rank of faculty members does not have an impact upon their attitudes toward the use of instructional media (see Table 25).

Hypothesis 5

There is a relationship between the degree held by faculty members and the attitudes toward the use of instructional media.

The null hypothesis stated that no significant relationship would be found between the degree held and the attitudes toward the use of instructional media.

Table 26 contains the data upon which analysis of this variable was made. Since the observed value of the test statistic \( F = 0.37, \text{df} = 1/322, p = .54 \) did not exceed the critical value at the .05 level of significance, the null hypothesis was retained.
level of significance, the null hypothesis of no significant relationship between degree held and faculty members' attitudes toward the use of instructional media was not rejected. It can be concluded, therefore, that the degrees held by faculty members were not related to their attitudes toward the use of instructional media.

Table 25
One-Way Analysis of Variance of Relationship Between Academic Rank and Faculty Attitudes Toward the Use of Instructional Media
(Category 2)

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>61</td>
<td>47.20</td>
<td>7.89</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>77</td>
<td>50.06</td>
<td>8.65</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>73</td>
<td>48.88</td>
<td>9.50</td>
</tr>
<tr>
<td>Instructor</td>
<td>113</td>
<td>49.84</td>
<td>8.19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>3</td>
<td>118.80</td>
<td>1.62</td>
<td>.1845</td>
</tr>
<tr>
<td>Within</td>
<td>320</td>
<td>73.29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 26
One-Way Analysis of Variance of Relationship Between Degree Held and Faculty Attitudes Toward the Use of Instructional Media (Category 2)

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master</td>
<td>155</td>
<td>49.44</td>
<td>8.29</td>
</tr>
<tr>
<td>Doctor</td>
<td>169</td>
<td>48.85</td>
<td>8.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>1</td>
<td>27.56</td>
<td>0.37</td>
<td>.54</td>
</tr>
<tr>
<td>Within</td>
<td>322</td>
<td>73.42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Hypothesis 6

Faculty members who have been teaching at an institution for a shorter period of time will have more favorable attitudes toward the use of instructional media than those who have a long period of time in teaching.

The null hypothesis which stated that no difference would be found between the two groups was tested against an alternate hypothesis which was stated in a positive direction and anticipated to be statistically significant at an alpha level of .05.

A difference in the mean scores for attitudes toward the use of instructional media between subjects who have been teaching for a
shorter period of time compared to those subjects who have been teaching for a long period of time can be observed (see Table 27) \((t = 3.12, df = 322, p = .002)\).

Table 27

<table>
<thead>
<tr>
<th>Years of Teaching Compared to Faculty Attitudes Toward the Use of Instructional Media (Category 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
</tr>
<tr>
<td>Less than 10 years</td>
</tr>
<tr>
<td>More than 10 years</td>
</tr>
</tbody>
</table>

Note. \(N = 324\). Category 2 contains 14 items.

Since the observed value of the \(t\) test (3.12) exceeded the critical value of \(t\) (1.65) in this one-tailed test, the null hypothesis of no difference was rejected in favor of the alternate hypothesis at the .05 level of significance. It can be concluded that subjects who have been teaching for a shorter period of time showed favorable attitudes toward the use of instructional media compared to those subjects who have a long period of time in teaching.

**Hypothesis 7**

Faculty members who have had formal courses in educational media will have more favorable attitudes toward the use of instructional media than those faculty members who did not have formal courses in educational media.
The null hypothesis which proposed that there was no difference between the two groups was tested against the directional alternative hypothesis which was stated in a positive direction and anticipated to be statistically significant in favor of those who have had formal courses at an alpha level of .05.

A difference in the mean scores for attitudes toward the use of instructional media between subjects who have had formal courses in educational media compared to those subjects who did not have formal courses can be observed (see Table 28) \( (t = 11.77, df = 322, p = .000) \).

Table 28

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taken formal courses</td>
<td>166</td>
<td>53.66</td>
<td>6.45</td>
</tr>
<tr>
<td>Not taken formal courses</td>
<td>158</td>
<td>44.34</td>
<td>7.78</td>
</tr>
</tbody>
</table>

Note. \( N = 324 \). Category 2 contains 14 items.

Since the observed value of the \( t \) test (11.77) exceeded the critical value of \( t \) (1.65), the null hypothesis was rejected at the .05 level of significance. The result of the \( t \)-test value indicates that there was statistically significant difference between the two groups. Furthermore, the research hypothesis was accepted in favor of those who have had formal courses. It can be concluded that
subjects who have had formal courses in educational media demonstrated favorable attitudes toward the use of instructional media compared to those who did not have formal courses in the same field.

**Hypothesis 8**

Faculty members who participated in in-service programs in media use will have more favorable attitudes toward the use of instructional media than those faculty members who did not participate in in-service programs in media use.

The null hypothesis stated that no difference would be found between the mean scores of the attitudes toward the use of instructional media by those subjects who participated in in-service programs and those who did not. The alternate hypothesis was directional and stated that a significant difference existed in the positive direction of those who participated in in-service media training programs.

Differences in the mean scores were observed in the attitudes toward the use of instructional media between the two groups (see Table 29). Specifically, subjects who participated in in-service programs had higher mean scores in the attitude scale than did the comparison group ($t = 7.71$, $df = 322$, $p = .000$).

Since the observed value of the $t$ test (7.71) exceeded the critical value of $t$ (1.65), the null hypothesis was rejected at the .05 level of significance. The data suggest that statistically important differences existed in favor of the positive direction of those subjects who participated in in-service programs; thus, the
research hypothesis was accepted at the .05 alpha level. It can be concluded, therefore, that faculty members who participated in in-service programs have more positive attitudes toward the use of instructional media than those faculty members who did not.

Table 29

In-Service Programs Compared to Faculty Attitudes Toward the Use of Instructional Media (Category 2)

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>170</td>
<td>52.26</td>
<td>7.40</td>
</tr>
<tr>
<td>Nonparticipants</td>
<td>154</td>
<td>45.53</td>
<td>8.31</td>
</tr>
</tbody>
</table>

Note. N = 324. Category 2 contains 14 items.

Discussion of the Results

In order to maintain continuity with the previous section, the discussion will adhere to the same sequence as the hypotheses.

The first hypothesis tested the quality of media service programs and its affect on the attitudes of faculty members toward the use of instructional media in two-year colleges, four-year colleges, and in universities.

In two-year colleges, the hypothesis was accepted. It appears that higher quality media service programs facilitate the use of the resources available by all faculty members and their attitudes become positive toward the availability of the services on campuses. This might be due to the fact that the current media services are
sufficient to meet the instructional needs.

In four-year colleges, there was no difference in regard to the utilization of instructional media between high and low groups. This implies that the quality of media service programs was not related to the use of instructional resources. A difference in the mean scores was not supported in this hypothesis; thus, the current media services at both institutions did not indicate that both institutions provide sufficient services to the faculty members. Further, the rejection of the research hypothesis at four-year colleges might be due to the fact that the difference in the mean scores on the current status of media service programs between both colleges surveyed was very small as reported by their media directors.

At the university level, results of the first research hypothesis showed a difference in the attitudes of faculty members toward the use of instructional media between subjects who comprised the two groups. It is likely that the higher quality of the services may have had a positive effect upon the utilization of the resources available to instructors. Also, those subjects who reported using instructional media may have had excellent results in using them in their teaching areas.

This hypothesis supported the contention of a significant difference between high and low quality media service programs. The observed difference between the two groups was sufficiently large enough to support the research hypothesis at the .05 alpha level. The comparison between those subjects in institutions rated as having high quality media service programs and those subjects in
institutions rated as having low quality media service programs showed strong support for the high quality group. The mean test result for the high quality media service programs group was 146.6 compared to 140.4 for the low quality group. This condition implies that the media service programs were effective in helping faculty members to develop a positive attitude toward the use of instructional media; moreover, college and university faculty were relying on the use of instructional media in their teaching areas in those institutions that have high quality media service programs.

The results supported the second hypothesis in that faculty members in each institution surveyed demonstrated positive attitudes toward the use of instructional media. This implies that there is additional testing that needs to be done in order to determine which type of institution has an impact upon the attitudes of faculty members toward the use of instructional media. The results did not support this hypothesis when subjects compared on the questionnaire Items 7 to 20 even though subjects were very close in rejecting the research hypothesis. Therefore, the use of the second category did not provide good enough results to determine the attitudes of the faculty members toward the use of instructional media as indicated previously in the review of the literature.

The third hypothesis was accepted. In the testing of this hypothesis, the results indicated a strong support for the research hypothesis that a relationship existed between subject areas taught and the attitudes toward the use of instructional media. When this hypothesis was tested using only the second category of the
questionnaire, the results supported the rejection of the research hypothesis. Since all means did not differ from each other, the rejection of the relationship might be due to the utilization of instructional media in many different subjects. It can be concluded that the use of all categories presented in the questionnaire did provide reliable data for testing this hypothesis and supported the relationship between subject areas and their affect upon the attitudes of faculty members.

The fourth hypothesis was accepted. The data obtained from the total of all questionnaire items supported the contention of the research hypothesis that academic rank was related to the attitudes of faculty members toward the use of instructional media. The questionnaire Items 7 to 20 supported the null hypothesis that no significant relationship existed between the independent and dependent variables. These contradictory results might be due to the fact that the second category of the faculty questionnaire did not measure what has been mentioned previously in the review of the literature. The use of the five categories to analyze the data collected supported the review of the literature which indicated that all categories were related to the use of instructional media. Therefore, this hypothesis was accepted. It can be concluded that faculty members did differ in their attitudes toward the use of instructional media, and at least one mean did differ from the others.

The fifth hypothesis was rejected. The data influenced the decision of failing to reject the null hypothesis of no relationship between degree held and faculty members' attitudes toward the use of
instructional media. This rejection of the null hypothesis might be due to the fact that both groups exhibited positive attitudes toward the use of instructional media regardless of their differences in regard to the independent variables. The same conclusion could be made for the second category of the faculty questionnaire. The results indicated a strong support for the null hypothesis of no relationship existing between the two variables. Moreover, it should be noted that those subjects who held bachelor degrees were eliminated from the testing of this hypothesis.

The sixth hypothesis was accepted. Subjects who have been teaching for a shorter period of time exhibited more positive attitudes toward the use of instructional media than those subjects who have a long period of time in teaching. This condition might be due to the development of technological devices and the accompanying materials in recent years and also due to the educational media programs that have been established in many colleges and universities. The data obtained from the second category of the faculty questionnaire supported the previous conclusion.

Results from the seventh hypothesis did show a positive direction in favor of those subjects who have had formal courses in educational media. The subjects who have had formal courses in educational media exhibited positive attitudes toward the use of instructional media compared to those subjects who did not have formal courses in the same field. The higher mean scores might be due to the fact that actual possessing of this background in the effectiveness of using these resources does guarantee a positive attitude
toward the use of instructional media in their teaching courses; moreover, this condition might be due to the availability and accessibility of the materials and the current media services available to them in their institutions as well. Using the second category of the faculty questionnaire, the null hypothesis was rejected. The results supported the data obtained from all five categories of the questionnaire.

Finally, the eighth hypothesis was in the predicted direction. Subjects who participated in in-service training programs showed more positive attitudes toward the use of instructional media than those subjects who did not participate. The same result was obtained when both groups were compared using the second category of the faculty questionnaire.

It appears that faculty members with training in educational media used significantly more media than faculty members without training. This might be due to the fact that most of the higher education institutions provide in-service media training programs for improving the utilization of instructional media. Also, the subjects who reported that they participated in such programs believed that the establishment of in-service media training programs for faculty members was necessary for their professional growth and development. This conclusion was supported by the analysis of the data obtained using the second category of the questionnaire in this study.
Summary

This chapter presented the testing of the research hypotheses, the analysis of the data collected, and a general discussion of the results. One-way analysis of variance and the $t$ test were used to test the research hypotheses.
Summary

The purposes of this study were:

1. To determine the status of the media service programs in two-year colleges, four-year colleges, and universities as measured by the media director in each institution.

2. To examine the relationship between the quality of the media service programs and the attitudes of faculty members in regard to the use of instructional media.

3. To determine whether (a) type of institution, (b) subject field, (c) academic rank, (d) degree held, (e) teaching experience, (f) formal courses in educational media, and (g) in-service media training programs are factors involved as measured by the faculty questionnaire on the use of instructional media.

This study was designed to answer the following questions:

1. Do the attitudes of faculty members in institutions rated as having high quality media service programs differ from the attitudes of faculty members in institutions rated as having low quality media service programs in regard to the use of instructional media?

2. Do type of institution, subject field, academic rank, degree held, length of teaching experience, formal courses in educational media, and in-service training programs in instructional media uses
affect faculty members' attitudes toward the use of instructional media?

A review of the relevant literature was conducted by the researcher. The following areas were covered by this review:

1. Media service programs in colleges and universities.
2. Factors affecting the development of media service programs. These factors were: (a) institutional support, (b) budget, (c) media personnel, (d) facilities, (e) availability of instructional media, and (f) in-service training programs.
3. New media and college teaching which focused upon the use of different forms of instructional media in teaching.
4. Comparison between instructional media. As noted previously, an abundance of literature has been published focusing upon comparison between different forms of instructional media use in classrooms and their effectiveness in the teaching-learning process.
5. Acceptance of instructional media. This section of the review of the literature focused upon the use of instructional media in many areas and faculty members' reactions toward the new media and their roles in the teaching and learning process.
6. Media use and faculty attitudes. This part examined the relationship between faculty members' attitudes and the use of the newer instructional media.
7. Factors influencing media utilization. In this last section, seven factors were identified and discussed, namely: (a) type of institution, (b) subject field, (c) academic rank, (d) degree held, (e) length of teaching experience, (f) formal course in
educational media, and (g) in-service media training programs. As noted earlier in Chapter II, various researchers have reached conclusions indicating that the attitude of faculty members toward the use of instructional media was related to the preceding factors that influence their use by instructors.

The subjects for this study consisted of media directors and faculty members from selected colleges and universities in Michigan. The professional sample was 6 media directors and 390 faculty members representing six institutions of higher education. Procedures for obtaining the subjects were discussed.

The data for this study were obtained by means of two questionnaires. In order to determine the status of media service programs in each institution, a written questionnaire was developed by the researcher. The questionnaire was mailed to each institution's media director of the LRC. Of the nine questionnaires distributed, eight (88.89%) were returned to the researcher. Therefore, six institutions were selected, three institutions rated as having high quality media service programs and the other institutions rated as having low quality media service programs as reported by the media directors of these institutions (see Table 11).

In order to answer the second question, a questionnaire was developed by the researcher. The items of the questionnaire were the outcome of reviewing the literature and discussing the factors and their relationship to the attitudes of faculty members toward the use of instructional media. The questionnaire consisted of two sections. The first section requested information on the background of each
participant. The second section consisted of 40 items based on review of the related literature to elicit the respondent's attitudes toward the use of instructional media. The items were divided into five categories. A Likert scale was assigned for each item ranging from 5 to 1 with a weight of strongly agree, agree, no opinion, disagree, and strongly disagree. The scoring was reversed for negative items. Of the 390 questionnaires distributed, 324 (83.08%) were returned to the researcher.

Data collected for the study were analyzed utilizing one-way analysis of variance (ANOVA) to test Hypotheses 2, 3, 4, and 5. Also, a t test for independent sample means was used to test Hypotheses 1, 6, 7, and 8. For reporting of the study results, the researcher selected the .05 level of significance.

The results of this study will be summarized in accordance with each of the hypotheses (see Table 30).

Results showed comparisons between subjects who have had high media service programs and those subjects who have had low media service programs.

1. The analysis of the data indicated that subjects at two-year colleges which rated as having high quality media service programs demonstrated positive attitudes toward the use of instructional media.

2. The analysis of the data showed no significant difference existed between high and low quality media service programs groups at four-year colleges.
Table 30
Results of the Testing of the Research Hypotheses
of the Present Study
(All Items)

<table>
<thead>
<tr>
<th>Hypothesis no.</th>
<th>Independent variable</th>
<th>Accept (A)</th>
<th>Reject (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a. Two-year colleges</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Four-year colleges</td>
<td></td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>c. Universities</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. All institutions</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Type of institutions</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Subject area</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Academic rank</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Degree held</td>
<td></td>
<td>R</td>
</tr>
<tr>
<td>6</td>
<td>Teaching experience</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Formal courses</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>In-service programs</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

3. At the university level, the analysis of the data supported the positive direction of the alternate hypothesis. High quality of media service programs was significantly associated with faculty attitudes toward the use of instructional media.

4. When all subjects from those institutions which rated as having high quality media service programs were compared to those subjects in institutions rated as having low media service programs, the observed difference between the two groups was sufficiently large.
enough to support the research hypothesis at the .05 alpha level. Subjects in those institutions rated as having high quality media service programs exhibited more favorable attitudes toward the use of instructional media than those subjects who did not have the same quality of media service programs.

Results were shown of the relationship between type of institution and the attitudes of faculty members toward the use of instructional media. There was a significant relationship between the type of institution and faculty members' attitudes toward the use of instructional media. The data obtained from the second category of the faculty questionnaire do not provide a strong support for the rejection of the research hypothesis. The probability ($p = .058$) of the rejection was very close to the .05 level of significance.

Results were shown of the relationship between subject areas and faculty members' attitudes toward the use of instructional media. There was a significant relationship between subject areas taught by faculty members and their attitudes toward the utilization of instructional media. Using the second category of the faculty questionnaire, the null hypothesis of no relationship was not rejected.

Results were shown of the relationship between academic rank and faculty members' attitudes toward the use of instructional media. The analysis of the data indicated that academic rank was related to the attitudes of faculty members toward the use of instructional media. This relationship was not supported by the result of the data obtained from the second category of the faculty questionnaire.
Results were shown of the relationship between degree held by faculty members and their attitudes toward the use of instructional media. The null hypothesis of no significant relationship between group means was not rejected. The same result obtained from the data collected using the second category of the faculty questionnaire. The results indicated a strong support for the null hypothesis of no significant relationship existed between the independent and dependent variables.

Results showed comparisons between subjects who have been teaching for a shorter period of time and those subjects who have a long period of time in teaching. Subjects who reported teaching for a shorter period demonstrated favorable attitudes toward the use of instructional media when compared to those who reported teaching for a long time. The data obtained from the second category of the faculty questionnaire provide strong support for the research hypothesis.

Results showed comparisons between subjects who had formal courses in educational media and those subjects who did not. Subjects who reported having had taken courses showed better mean scores on their attitudes toward the use of instructional media than those subjects who reported not having had taken such courses. When the two groups were compared using the second category, the null hypothesis of no significant difference was rejected in favor of the alternate hypothesis.

Results showed comparisons between subjects who had attended in-service media training programs and those who did not. A difference
was observed in the attitude mean scores between both groups. Subjects who participated in in-service programs demonstrated more positive attitudes toward the use of instructional media than those subjects who did not participate in such programs. The same result was obtained when the two groups were compared using the second category of the faculty questionnaire.

The differences between the results of the data collected using all categories and the second category of the faculty questionnaire on the use of instructional media are illustrated in Table 31. These differences were based on seven independent variables. These variables were: (a) type of institution, (b) subject area, (c) academic rank, (d) degree held, (e) teaching experience, (f) formal courses, and (g) in-service media training programs.

Conclusions

Guidelines for interpreting tests were taken from highly respected statistical textbooks. These textbooks include Ary et al. (1979), Borg and Gall (1983), Hinkle et al. (1979), Kerlinger (1973), McMillan and Schumacher (1984), and Wiersma (1980).

The following conclusions related to the listed hypotheses in Chapter II. Each hypothesis is discussed, as well as conclusions based upon literature of the significance of the statistical data.

For the most part, the participants in the study held differentiated views on the relationship between the preceding factors and the attitudes of faculty members in regard to the use of instructional media. Some of the findings are consistent with the preview
Table 31
Differences Between the Results of the Data Collected Using All Categories and the Second Category Only
(N = 324)

<table>
<thead>
<tr>
<th>Research hypothesis no.</th>
<th>Independent variable</th>
<th>All categories (40 items)</th>
<th>Second category (14 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Type of institution</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>3</td>
<td>Subject area</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>4</td>
<td>Academic rank</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>5</td>
<td>Degree held</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>6</td>
<td>Teaching experience</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>Formal courses</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>In-service programs</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Note. A = the research hypothesis was accepted.  
R = the research hypothesis was rejected.

research studies; others are not. Some findings are still controversial.

Hypothesis 1

Differences Between High and Low Quality Media Service Programs in Two-Year Colleges

Based on analysis of the data gathered, the research hypothesis was accepted. Subjects who have had high quality media service programs were relying on the use of instructional media in their teaching areas. Similarly, positive results of the importance of an
affective media service program was reported by several studies. Ittelson (1979), Larry (1984), and Mims (1984), in their reports of studies they conducted, indicated that the lack of high quality of media service programs lead to underutilization of instructional media by faculty members in their instructional process.

**Differences Between High and Low Quality Media Service Programs in Four Year Colleges**

The analysis of the data indicated no difference was found between high and low groups. The research finding of no significant difference between high and low quality media service programs in regard to the use of instructional media by both groups did not support Bannon's (1979) findings.

**Differences Between High and Low Quality Media Service Programs at the University Level**

High quality of media service programs was significantly associated with faculty members' use of instructional media. Several studies by El-Sharkawy (1983), Imogie (1980), Ittelson (1979), Larry (1984), Librero (1982), Mims (1984), and Russell (1981) reported that the establishment of an effective media service programs in higher education institutions was related to greater utilization of instructional media by faculty members in their instructional process. It can be concluded that those subjects who reported having used instructional media in their teaching areas supported the analysis of the data obtained from their media directors on the status of media service programs in their institutions. It seems to the investigator
that the availability of the resources is more likely to result in
more favorable attitudes among faculty which may lead to greater
utilization of instructional media in their teaching areas.

Differences Between High and Low Quality Media Service Programs
in Different Institutions

In the comparison of the two groups, differences were found
between high and low institutions in regard to the quality of media
service programs and its affect upon the attitudes of faculty members
toward the use of instructional media. Those subjects from institu-
tions rated as having high quality media service programs tended to
have more favorable attitudes toward the use of instructional media
than those subjects from low rated institutions. Several studies
have been conducted by different investigators, R. C. Allen (1974),
Bannon (1979), Brown et al. (1972), Dipaolo (1980), El-Sharkawy
(1983), Imogie (1980), Ittelson (1979), Joo (1980), Nkom (1982), and
Sanner (1974), in their reports, indicated that there was a signifi-
cant relationship between higher quality media service programs and
the increasing rates of use of instructional media in colleges and
universities. Therefore, positive relationships existed between
media utilization and the attitude toward instructional media.
Margoles (1969) concluded that a higher education institution has an
important role to play in meeting its obligation to instructional
changes through support systems such as media service programs which
will have a positive impact on the faculty utilization of instruc-
tional media.
Generally, each educational media program today represents a combination of resources that include people, materials, machines, facilities, and environments, as well as purposes and process. The contribution of educational media service programs to instruction in a college or university is determined largely by the extent to which the services are provided to instructors and students through an organized program. Therefore, those faculty members who were less favorable disposed toward instructional media did not suffer the greater frustrations when the services of the LRC did not meet their instructional needs. According to Aquino (1974), such persons would be less likely to notice faults within their educational environments and would be more inclined to overlook defects which did attract their attention.

Hypothesis 2

Relationship Between Type of Institution and Faculty Attitude Toward the Use of Instructional Media

The study found a significant relationship existed between the independent and dependent variables. The type of institution and its affect upon the utilization of instructional media has been studied by different investigators. Abdi (1981), R. C. Allen (1974), Bender (1980), and Mims (1984), in their studies, indicated that the use of instructional media was associated with the type of institution. Meanwhile, other studies (Ajibero, 1985; El-Sharkawy, 1983; Gagne & Briggs, 1974; Miles, 1973; Moore & Hunt, 1980; Morton, 1980; Moshaikeh, 1983; Moss, 1979; Proctor, 1983; Soremekun, 1979;
Stephens, 1972; Thomson, 1975; Tibbs, 1975; Wimberly, 1975) found a positive relationship existed between media utilization and teachers' attitudes toward instructional technology.

The preceding findings were supported by this study. Therefore, it was concluded that subjects do agree upon the relationship between type of institution and faculty members' attitudes toward the use of instructional media. This researcher again concluded that the data analysis has supported the contention of the research hypothesis and the literature review.

Hypothesis 3

Relationship Between Subject Areas and Faculty Attitude Toward the Use of Instructional Media

The analysis of the data indicated a strong support for the research hypothesis. Therefore, it can be concluded that subject areas taught by faculty members is a factor in the extent to which instructors utilized instructional media. Abdi (1981), Godfrey (1967), Maffton (1981), and Wimberly (1975) concluded in their studies that the use of instructional resources is related to the subject matter taught. Therefore, the study of this factor was supported by different studies.
Hypothesis 4

Relationship Between Academic Rank and Faculty Attitude Toward the Use of Instructional Media

The analysis of the data indicated that academic rank was related to the attitudes of faculty members toward the use of instructional media. The findings of this research of a significant relationship between the independent and dependent variables supports McIntyre's (cited in Brown & Thornton, 1963) finding. Therefore, one can conclude that the importance of this factor has been emphasized in different studies, and its influences on the utilization of instructional media was great in regard to faculty members' attitudes.

Hypothesis 5

Relationship Between Degree Held and Faculty Attitude Toward the Use of Instructional Media

The analysis of the data indicated a strong support for the null hypothesis of no significant relationship existing between degree held by faculty members and their attitudes toward the use of instructional media. The research finding of no significant relationship between degree held and the attitudes of faculty members toward the use of instructional media supports the findings of S. C. Sikkhabandit (1977) and Welch (1975). Therefore, the importance of this factor and its influences on the use of instructional media is inconsequential to the understanding of the attitudes of faculty members toward the use of instructional resources. Felty (1975), in
a survey of college media directors, found that possession of a
doctorate was not a significant factor in the creation of favorable
atitudes by faculty members toward the use of instructional media.
As noted earlier in Chapter II, the findings seem to hold contradic­
tory views regarding the degree held and its affect upon the utiliza­
tion of instructional resources. Also, there were insufficient data
available on the use of instructional media by faculty members hold­
ing a bachelor degree in the present study. Therefore, additional
investigation of this factor and its relationship to the attitudes of
faculty members is clearly warranted.

Hypothesis 6

**Differences Between Years of Teaching Experience and Faculty**
**Attitude Toward the Use of Instructional Media**

A significant difference was established by the data analysis
involving faculty members' years of teaching experience and their
attitudes toward the utilization of instructional media. Those sub­
jects with less than 10 years of teaching experience tended to have
more favorable attitudes toward the use of instructional media than
those subjects with more than 10 years of teaching. As noted earlier
in Chapter II, the importance of this factor and its influences upon
the utilization of instructional media by faculty members in higher
education institutions has been emphasized by numerous studies. Mims
by stating that teaching experience is related to the utilization of
instructional resources by faculty members in their teaching areas. Further, S. C. Sikkhabandit (1977) concluded that instructional media tended to be used by college instructors with less than 10 years of teaching experience. This condition might be due to the fact that faculty members who have been teaching for more than 10 years tended to be older and to have obtained their degree at an earlier time than faculty with less than 10 years of teaching. Moreover, faculty members with more than 10 years of teaching may generally have obtained their education during an era of traditional methods, while those faculty with less than 10 years of teaching may have had generally more exposure to teaching methods that utilize instructional media.

Hypothesis 7

The Affect of Formal Courses on Faculty Attitudes Toward the Use of Instructional Media

The data revealed that those subjects who took one or more formal courses in educational media demonstrated more favorable attitudes toward the use of instructional media than those subjects who did not take any course related to educational media. This finding is consistent with the findings of earlier studies (Abdi, 1981; R. M. Davis, 1983; Maffton, 1981; Mims, 1984; Morton, 1980; Simms, 1977). At least two factors have contributed to the use of instructional media in this situation. One is the increasing number of the technology devices and materials on campuses, a factor that may well be associated with the increase in faculty-student ratio. Another
factor is that many colleges and universities provide programs that lead to master's and/or doctorate degrees in the field of educational media. This might be due to the basic nature of the teaching-learning process and the technology involved. Therefore, these two factors may have an impact upon those subjects in directing their attitudes toward the utilization of instructional media.

Hypothesis 8

The Affect of In-Service Media Training Programs Upon Faculty Attitude Toward the Use of Instructional Media

The data in this study revealed that those subjects who had attended in-service media training programs showed more positive attitudes toward the use of instructional media than those subjects who did not participate in such training programs. The finding of the present study supports the findings of earlier studies by Aquino (1974), Evans et al. (cited in Brown & Thornton, 1963), Grant (1970), and Issa-Fullata (1983). In their reports, they indicated that attitudes of faculty members who participated in in-service media training programs on the use of instructional media changed dramatically in a favorable direction. Similar findings to the present study were found by several researchers (Ajibero, 1985; Al-Debassi, 1984; Berman, 1969; Dalgaard, 1982; Freiburger, 1981; Kozma, 1978; Mafton, 1981; Moore & Hunt, 1980; Moss, 1979; Ogedengbe, 1983). Growth in acceptance of new technology by colleges and universities is one of the important factors that may well be associated with the development of an effective media service program in higher education.
institutions. Therefore, the need for more effective in-service media training programs to acquaint faculty members with the appropriate utilization of instructional media has been emphasized by many studies. In a recent study, Khosh-Chashmi (1983) found that most faculty members agree that they can be more effective in their instruction if they know more about proper utilization of educational technology.

Generally, at the very core of the success of any LRC is the usage of its materials and equipment and the other services that are provided by media personnel. In order to develop effective media service programs in higher education institutions, this investigation, however, emphasized the importance of institutional support, budget, the qualification of media personnel, facilities, and availability and accessibility of instructional media as crucial elements that ought to be taken into account in the evaluation of the quality of media service programs.

It is also important to note that faculty attitude is a very crucial factor in determining the acceptance of instructional media as efficient integrated alternative methods in the teaching-learning process to traditional methods of instruction. Based on the analysis of the data, there was strong evidence that negative attitudes of faculty members toward the use of instructional media appears to be affected by the quality of media service programs, type of institutions, subject area taught, academic rank, teaching experience, formal courses, and in-service media training programs.
Further, educational innovation will not be accepted automatically; a strategy has to be planned, initiated, and implemented. Several reasons have been advanced for the faculty members' negative attitudes; one of the reasons that needs to be emphasized is the involvement of faculty members in any proposed innovation to be introduced into a system. The more faculty involvement in any proposed innovation in higher education, the less the chance of faculty members' negative attitudes toward the innovation and the more the chance of success of the proposed changes.

Recommendations for Further Research

Analysis of the data in the present study led to the formulation of several recommendations:

1. Previous studies did not offer comparative data on the use of instructional media in four-year colleges. It would be useful if future research involved a large sample of media directors to determine the quality of the media service programs in each institution.

2. There was no effort comparing the quality of the media service programs at four-year colleges. Since the present study found no difference existed between high and low quality media service programs, further research is needed.

3. Research effort is recommended to determine whether certain types of instructional media are better suited than others for use in particular academic disciplines.

4. In regard to the degree held, it would be useful if future research involved those instructors who hold bachelor degrees and
compare them to those who hold master's and/or doctoral degrees.

5. It would be interesting to do comparison studies between colleges and universities that provide programs which lead to master's and/or doctorate degrees in educational media.

6. Conduct an extensive research study involving the analysis and identification of the role of media personnel in relation to the instructional process in higher education.

7. If future research is done, it is recommended by this researcher that those studies attempt to make comparisons between subjects who had formal courses in educational media and those who attended in-service media programs in regard to the use of instructional media.

8. It is recommended to investigate the relationship between demographic variables (gender) and the use of instructional media in higher education.

9. Research effort is recommended to improve the quality of media service programs in higher education institutions. Several respondents commented that their use of media would definitely increase if they were given the services related to instructional needs.

10. The present study should be replicated periodically in order to determine whether the statistical data noted herein remain constant or vary over time.

11. The scope of the present study could be expanded to include other regions; the population sample could be enlarged to include administrators, media personnel, and students; the methodology could
be modified to include interviews along with written questionnaires. If future research involved personal interviewing, assurances of confidentiality of responses could be guaranteed verbally and in writing.

Recommendations Based on Free Responses

Based on the comments reported by many respondents from each institution surveyed, institutional support was determined as a principal factor related to the development of effective media service programs in colleges and universities.

1. More effort should be made by college and university administrators to achieve a greater commitment to the support of their educational media service programs.

2. Physical facilities should be arranged to improve the location and accessibility of educational media to the total instructional staff.

3. The media budget should be developed to reflect the media needs of the entire institution and the budget should be developed and defended by professional media personnel.

4. Additional instructional equipment and materials should be purchased for the media programs.

5. Substantial increases should be made in the total number of media personnel.

6. Communication and cooperation between media personnel and faculty members should be increased, especially in the integration of appropriate media technologies into the instructional process.
7. More in-service training programs should be conducted in educational media, especially in the area of media utilization.

8. Institutions of higher education should contribute to the advancement of instructional technology not only by giving favorable consideration to expanding its use, whenever such use is appropriate, but also to placing responsibility for its introduction and utilization at the highest possible level of academic administration.
Appendix A

Cover Letter to Media Directors
January 20, 1986

Dear Media Director:

I am a doctoral candidate in the Educational Leadership Department at Western Michigan University. I am conducting a survey of the media service programs in selected public colleges and universities in Michigan. The purpose of this study is to evaluate the status of the services of the learning resources centers in colleges and universities.

I realize that your time is very valuable; however, your help in this study is needed. Please take a few minutes to accurately respond to the enclosed questionnaire.

An addressed stamped envelope is enclosed for returning the questionnaire at your earliest convenience. Further, your name will not be disclosed. For this research, the overall response is important and no individual responses will be singled out.

Thank you for your cooperation and participation in this very important study.

Sincerely,

Abdelgader El-Musratı

Approved:

Charles C. Warfield
Committee Chairman

Enclosures

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Appendix B

Media Director Questionnaire
MEDIA DIRECTOR QUESTIONNAIRE

An Evaluation of the Educational Media Services Programs in Colleges and Universities

I. Background information

1. Name of institution: _______________________________________

2. Type of institution:

   Two-year college _______________________________________

   Four-year college _______________________________________

   University ___________________________________________

II. Please respond by circling the letter which most closely reflects the extent of your agreement/disagreement with each of the items listed below.

   S A N D S A A N D S
   t g i t
   r r s r
   o e O a o
   n e p g n
   g l i e l
   y l y i e y
   A g r e e
   D i s a g r e e

1. The institution is committed to the use of educational media as an integral part of the instructional program of the college.   SA A NO D SD

2. Institutional administrators encourage faculty members to increase their use of instructional media in their classroom settings.   SA A NO D SD
3. There are clearly defined policies, procedures, and plans for educational media program, including immediate short-range and long-range goals.

4. Faculty members are encouraged to experiment with educational media as a means of increasing instructional effectiveness.

5. The location of the learning resources center is such that media are not readily accessible to faculty, staff, and students.

6. There is an adequate distribution system to increase the delivery of all media to users when needed.

7. The budget of the learning resources center is insufficient to support an adequate media program.

8. The budget of the learning resources center is almost entirely on immediate educational needs.

9. The learning resources center is adequately financed through an independent budget.

10. The budget of the media service programs does not reflect the needs of the entire institution.

11. The budget of the learning resources center is developed by the professional media staff in consultation with financial officers and other college administrators.

12. There is insufficient quantity of educational media.

13. A professional collection of materials is made available and easily accessible for faculty use.

14. Equipment for proper utilization of materials is made accessible for use within the learning resources center.
15. Equipment for proper utilization of materials is made accessible for classroom use.

16. The selection of all materials and equipment for purchase by the learning resources center is not based on predetermined specifications formulated by the media personnel.

17. The learning resources center is provided with adequate physical facilities for optimum services to an institution.

18. The instructional facilities of the institution are well designed.

19. All classrooms are designed and equipped with physical facilities that make possible optimum use of a wide variety of instructional media.

20. Unique materials needed for specific teaching and learning situations are produced locally.

21. Practically no facilities for production are available for faculty and students to produce their own instructional materials.

22. Media storage facilities are available but are inadequate for some types of educational media.

23. There is no provision for repairing educational media.

24. Trained personnel are available in sufficient quality and quantity for the instructional needs of the faculty.

25. Faculty and staff are involved in decision-making activities relating to the integration of educational media programs with the curriculum and instruction.
26. Professional consultation services are available to the faculty, administrators, staff, and students in the selection, acquisition, preparation, production, utilization, and evaluation of educational media.

27. Professional educational media staff are involved in planning and conducting continuous in-service training programs concerned with the selection, development, production, and use of all types of instructional media.

28. The administrator in charge of an educational media program works in close cooperation with a faculty committee in periodic evaluations of the media program.

29. Faculty members are kept informed on new developments in materials, equipment, and the technology of instruction.

30. There are definite plans for involving faculty members in continuous evaluations of the effectiveness of presently owned media.

III. COMMENTS

Please indicate briefly what changes could be made in your institution in order to improve the quality of the services of the learning resources center.
Appendix C

Cover Letter to Faculty Members
Dear Faculty Members:

Faculty members at virtually every institution of higher education have become increasingly concerned with the role of instructional media in their teaching areas. Therefore, I am conducting a survey of the factors affecting faculty members' attitudes toward the use of instructional media in selected public colleges and universities in Michigan. The purpose of this research is to compare the use of instructional media in two-year colleges, four-year colleges, and universities by faculty members.

I realize that your time is very valuable; however, your help in this study is needed. Please take a few minutes to accurately respond to the enclosed questionnaire.

An addressed stamped envelope is enclosed for returning the questionnaire at your earliest convenience. Further, the number that appears on the questionnaire will be used for follow-up purposes only. For this research, your name will not be disclosed, and no individual responses will be released. Therefore, the overall response is important for completing this study.

Upon completion of the dissertation, I would be happy to send you a copy of the results if this is your wish.

Awaiting your earliest reply, I thank you for your cooperation and participation in this very important study.

Sincerely,

Abdelgader El-Musrati

Approved:

Charles C. Warfield
Committee Chairman

Enclosures

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Appendix D

Faculty Questionnaire on the Use of Instructional Media
Faculty Questionnaire on the Use of Instructional Media

I. Background information

1. Type of institution:
   Two-year college ________ Four-year college ________
   University ______________

2. Subject area: (please check one)
   Social Sciences ________ Natural Sciences ________
   Professional ___________ Humanities ______________
   Fine Arts ________________

3. Academic rank: (please check one)
   Professor ________________ Assistant Professor ______
   Associate Professor ______ Instructor ________________

4. Highest degree earned:
   Bachelor ________ Master ________ Doctor ________

5. Number of years teaching in higher education ______________

6. Number of formal courses taken in educational media ________

7. Have you attended in-service training programs in the use of instructional media (seminars, workshops, or faculty meeting)?
   Yes _______________ No _______________

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II. Please respond by circling the letter which most closely reflects the extent of your agreement/disagreement with each of the items listed below.

SA = Strongly Agree  D = Disagree
A = Agree  SD = Strongly Disagree
NO = No Opinion

Media Availability and Accessibility

1. There are sufficient audiovisual materials and equipment available when I need them.  SA A NO D SD
2. Audiovisual materials and equipment should be made accessible to the faculty members.  SA A NO D SD
3. The quality of media materials and equipment available to me is not in good condition.  SA A NO D SD
4. It is difficult to integrate available audiovisual materials into my teaching area and lesson plans.  SA A NO D SD
5. The current media services at my institution are not sufficient to meet the instructional needs.  SA A NO D SD
6. I would be willing to produce audiovisual materials for use in my teaching area, if the facilities and finances were readily available.  SA A NO D SD
Media Use

7. Many of my colleagues have had excellent results in using instructional media.  
   SA A NO D SD

8. I prefer to use more instructional media in my classroom than traditional methods of instruction.  
   SA A NO D SD

9. The use of instructional media tends to improve the performance level and achievement of my students.  
   SA A NO D SD

10. Instructional media provides more opportunities for the learners to acquire a wide variety of knowledge.  
    SA A NO D SD

11. The utilization of instructional media in my teaching area has raised students' achievement and performance when they are compared with those who have been taught through traditional methods of instruction.  
    SA A NO D SD

12. College and university faculty should encourage students to utilize audiovisual materials in presentations and in independent studies.  
    SA A NO D SD

13. I make audiovisual materials for instructing my classes.  
    SA A NO D SD

    SA A NO D SD

15. My field of specialization does not generally lend itself well to the use of instructional media.  
    SA A NO D SD

16. It is too much of a bother to adapt course content to audiovisual materials.  
    SA A NO D SD

17. To prepare class using instructional media takes much longer than using more traditional methods of instruction.  
    SA A NO D SD

18. Instructional media takes up too much time and does not leave time to cover the textbook materials.  
    SA A NO D SD
19. I feel more comfortable with a traditional method of instruction. SA A NO D SD

20. All classrooms are designed and equipped with physical facilities that make possible optimum use of a wide variety of instructional media. SA A NO D SD

Desirability and Applicability of Educational Media

21. The use of instructional media can be very helpful in most college and university subjects. SA A NO D SD

22. Using instructional media should be viewed as being an essential for college and university teaching. SA A NO D SD

23. An instructional program should be supported by an adequate supply of audiovisual materials and equipment. SA A NO D SD

24. Faculty members are not encouraged to experiment with educational media as a means of increasing instructional effectiveness. SA A NO D SD

25. Faculty members should be acquainted with the nature of the technology and its relevance to the teaching-learning process in their field of specialization. SA A NO D SD

26. The improvement of instruction should involve innovative instructional methods which utilize audiovisual materials and equipment. SA A NO D SD

27. The adoption of new media in colleges and universities for improving the quality of teaching and enhancing the learning process should be considered a primary goal of the academic libraries. SA A NO D SD
Cooperation and Communication

28. Media personnel are available at my institution to provide services to faculty in the use of instructional media.

29. Cooperation between our media personnel and our faculty is essential to meet the media needs of an instructional program.

30. It is essential to involve professional media personnel with faculty members in curriculum development and in the integration of the appropriate media and technology into the instructional process.

31. The faculty should be kept informed of new developments in audiovisual materials, equipment, and technology for instruction.

32. Faculty members should not be involved in continuous evaluations of the effectiveness of the media service programs.

33. The quality and variety of audiovisual materials and equipment provided for the instructional programs should be based on faculty's recommendations.

34. Professional consultation services are not available to faculty members in the selection, preparation, and production of instructional media in my institution.

35. In my institution there is inadequate media personnel to assist faculty members in the design of their instructional programs where media are concerned.

36. I have difficulty in getting help from the professional media personnel in choosing the appropriate audiovisual materials for my courses.
In-Service Media Training Programs

37. In-service media training programs relating to the utilization of instructional media are not provided in my institution.

38. In-service media training programs made me aware of the proper utilization of instructional media in my field of specialization.

39. Continuous in-service media training programs for the use of technological devices and materials should be carried on as a means of improving instruction.

40. Establishment of an in-service media training program for faculty members is not necessary for their professional growth and development.

III. Comments

Please indicate briefly what changes could be made in order to increase your use of instructional media.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Appendix E

Follow-up Letter
May 1, 1986

Dear ______________:

I am a doctoral candidate in the Educational Leadership Department at Western Michigan University. I am conducting a survey of the factors affecting faculty members' attitudes toward the use of instructional media in selected public colleges and universities in Michigan. The purpose of this research is to compare the use of instructional media in two-year colleges, four-year colleges, and universities by faculty members.

Just over two weeks ago I sent you a questionnaire; however, we are particularly desirous of obtaining your responses because your experience will contribute significantly toward solving some of the problems we face in this important area of education.

It will be appreciated if you will complete the questionnaire form prior to May 10th and return it. Other phases of this research cannot be carried out until we complete analysis of the survey data. We would welcome any comments that you may have. For this research, your responses will be held in strictest confidence.

We will be pleased to send you a summary of the survey results if you desire.

Thank you for your cooperation.

Sincerely,

Abdelgader El-Musrati

Approved:

Dr. Charles C. Warfield, Chairman
Dr. David J. Cowden
Dr. Steven C. Rhodes
Dr. Bill Armstrong

Enclosure

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