FACULTY PERCEPTIONS OF THE USE AND EFFECTIVENESS OF INSTRUCTIONAL MEDIA IN TEACHING STUDIO-ART COURSES

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CHAPTER I

INTRODUCTION

Instructional media have been used effectively in the transmission of knowledge, in developing students' observational skills, and in adding emphasis to information transmitted (Van Der Drift, 1980). This may explain why the use of instructional media to complement traditional lecture has become a common technique used in all disciplines and at all levels of the educational system, extending from preschool activities through graduate school (Dwyer, 1978).

While art, as a discipline, "is more an area of human experience than a body of knowledge; and education in art is more a development of the capacity to experience than it is the acquisition of knowledge" (Ramke, 1970, p. 269), there have been some indications that art education is becoming increasingly responsive to development in the technology of instruction. For many years, art departments have used instructional media to supplement the lecture format (Lanier, 1966): "Technology has become an integral part of all art education" (Kelly, 1966, p. 28).

The great promise of instructional media technology is that it offered hope of major improvement in the quality and effectiveness of teaching and learning. Instructors also used media technology

to improve educational efficiency: "There is, however, nothing inherent in the nature of instructional technology that guarantees these outcomes" (Hershfield, 1981, p. 5).

Dwyer (1976) remarked that instructional media are available in various types and varieties and that teachers have no way of knowing whether instruction without media would be more effective than the same instruction with media. In addition, Nesbit (1981) and Kemp (1980) determined that different types of instructional media promote different levels and purposes of learning.

Although instructional media do not provide any guarantee for quality and efficiency of teaching, considerable attention has focused during the past several years on the evaluation of the effectiveness with which instructional media can be used to improve teaching, and the results have been well documented by several researchers (Campeau, 1974; Jamison et al., 1974; Moldstad, 1974). There has been very little research, however, evaluating the effectiveness of using instructional media in teaching studio-art courses at the college level; nor have there been extensive efforts to identify methods of using instructional media which are most effective in facilitating the teaching of specific studio-art objectives.

Background of the Problem

Currently, the economy is a major concern of colleges and universities. Throughout the country, college deans and department heads feel challenged by fiscal problems. The economic pressure

seems to stem, in large part, not from the lack of resources, but from a continued dilution of what college administrators can buy with the fixed level of resources available.

The general resources of colleges and universities are people, money, materials, equipment, and building facilities. Neil (1978) noted that educational systems are extremely expensive in terms of all resource categories and that an upward trend of real cost per student appears exponential. For educational institutions which are labor intensive (i.e., a large percent of total cost is attributable to personnel services), problems and costs seem to increase as efforts are made to increase productivity (Fleming, 1975; Neil, 1978; Weigarten, 1981):

> Inflation is the great culprit. During the period when it was running at less than a 5 percent level there was some inevitable erosion in the university base, but at the present level, which seems to be in the neighborhood of 10 to 12 percent, there is no way in which universities can keep pace with current level of support (Fleming, 1975, p. 13).

As inflation accelerates, costs rise. The amounts of capital outlay required for personnel and facilities go up at a rapid rate. In this situation of greatly increased costs, there is no alternative but to cut costs. The result is often some cutback in personnel for both academic and non-academic areas, so that available resources can be spread over fewer people.

As reflected in most sectors of society today, resources available for postsecondary education are not meeting the need. In an attempt to cope with this problem, Fleming (1975) noted that university administrators have been trying to implement internal

cutbacks. This effort has created great difficulties for art departments in competition for funds among the disciplines represented in the university: "Budgets for art departments within universities are notoriously low, particularly operational funds, and in recent years this has posed special problems. . . " (Kelly, 1972, p. 28).

The key to improving productivity in the economic sector has been through assisting human efforts via technology (Jamison, 1974). Improving productivity in business, industry, agriculture, and medicine through technological applications stirs the hopes of teachers, school administrators, and citizens that similar improvement can take place in teaching and learning (Trow, 1963). Faced with these economic pressures, it is natural that college administrators would ask whether the advances in technology of instruction could contribute to solving their problems (Weigarten, 1981). Can instructional technology improve the quality of the teaching and learning process? Can it provide increased productivity at low cost? Caffarella (1977) wrote that many educators have recommended instructional media as an alternative by which institutions of higher education could meet, at least in part, the current problems. Moldstad (1974) also supported this alternative, saying that greater efficiency and economy in teaching and learning can be achieved through well-planned use of instructional technology.

Policy decisions concerning adoption or discontinuation of the use of instructional media in teaching studio-art courses focus on two questions: (1) Do the instructional media produce desirable results on the part of the learner? (2) Are the instructional media more effective than alternative methods? (Kandaswamy, 1980). This study was conducted to obtain data which would respond to the first

question.

There are indications that instructional media have been used in teaching studio-art courses for a long time, but evidences of their effectiveness are still not available. The present study hoped to contribute to the literature and research in higher education dealing with effective teaching of studio-art courses and to provide concrete evidence for education decision makers about whether to adop instructional media in teaching such courses.

Statement of the Problem

The intent of this study was to determine the purposes, the effectiveness, and the extent of use of instructional media by studio-art college teachers. Instructional media included: (1) Programmed Instruction, (2) Television, Video Tape, and Motion Pictures, (3) Slides, (4) Filmstrips, (5) Overhead Transparencies, (6) Radio, (7) Tape Recording, (8) Multiple Media, and (9) Computer-Assisted Instruction. The studio-art courses included (1) Drawing, (2) Painting, (3) Design, (4) Printmaking, (5) Sculpture, (6) Ceramics, and (7) Photography.

The study was planned to determine whether there was a relationship between the effectiveness and the use of instructional media in studio-art courses. Perceived effectiveness of the subjects was measured against (1) student performance, (2) student satisfaction, (3) teacher performance, (4) time consumed, and (5) class size. Effectiveness was measured by Likert-Type Scale: (1) greatly increased, (2) somewhat increased, (3) no change, (4) somewhat reduced, and (5) greatly reduced. The study was planned to determine whether a relationship existed between the effectiveness and the use of instructional media in teaching

studio-art courses at college level.

Hypotheses

Specifically, the following null hypotheses needed to be tested;

Hypotheses One: There is no relationship between the use of programmed instruction in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Two: There is no relationship between the use of television, video tape, and motion pictures in teaching studio-art courses and effectiveness in the following terms:

A. student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Three: There is no relationship between the use of slides in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Four: There is no relationship between the use of filmstrips in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Five: There is no relationship between the use of overhead transparencies in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Six: There is no relationship between the use of radio in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Seven: There is no relationship between the use of tape recording in teaching studio-art courses and effectiveness in the

following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Eight: There is no relationship between the use of multiple media in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Hypothesis Nine: There is no relationship between the use of computer-assisted instruction in teaching studio-art courses and effectiveness in the following terms:

A. Student performance

B. Student satisfaction

C. Teacher performance

D. Time consumed

E. Class size

Definition of Terms

The terms used in this study were defined as follows:

Studio-Art Courses: the laboratory setting in which students develop motor skills in art.

Instructional Technology: a systematic approach for the learning and teaching process that involves use of a combination of human and non-human resources and concern for the teaching and learning environment.

Instructional Medium: any person, material, or event that establishes conditions which enable the learner to acquire knowledge, skills, and attitudes. (For purposes of this research, "medium" is defined as the graphic, photographic, electronic, or mechanical means for arresting, processing, and reconstituting visual or verbal combinations. Specifically, this term is used to describe programmed instruction, television, video tape, motion pictures, slides, filmstrips, overhead transparencies, radio, tape recording, multiple media, and computer-assisted instruction.)

Programmed Instruction: self-paced teaching within a textbook-like format which allows students to study at their own pace and time, separate from the teacher.

Multiple Media: the sequential use for class instruction of a variety of instructional media such as slides, motion pictures, and overhead transparencies.

Computer-Assisted Instruction: the use of the computer as an instructional component in teaching studio-art courses. (Instruction material is presented via a display unit such as a cathode ray tube. The student scans the presentation, and by means of a switch, the student tells the computer to proceed to the end of the lesson.)

Effectiveness: measures faculty perceptions of how well the instructional objectives are achieved as perceived by faculty. (For purposes of this research, the effectiveness of instructional media is measured via student performance, student satisfaction, teacher performance, time consumed, and class size.)

Student Performance: student's progress in art according to objectives and purposes that can be appraised by the teacher in terms of expressive quality, organization, use and handling of materials and tools.

Student Satisfaction: teacher perceptions of how the studio-art student feels about the course when instructional media are used and when they are not.

Teacher Performance: a studio-art instruction's self-evaluation of teaching with regard to his or her objectives and purposes.

Time Consumed: the number of minutes used in lecture or presentation with or without instructional media.

Class Size: the number of students enrolled in the studio-art class.

Limitation of the Study

This study was limited to a stratified random sample of professional art schools, junior colleges, and senior colleges in the United States that had accredited art departments.

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature was presented in four sections of information related to the central theme of this study: (1) use of instructional media in studio-art courses, (2) the effectiveness of instructional media, (3) instructional media included in this study, and (4) summary.

Use of Instructional Media in Studio-Art Courses

The process of learning is an individual experience for each person (Kemp, 1980). Learning takes place when a person changes his or her disposition by means of operations (Heidt, 1976). These operations were regarded as internal and/or external activities which were the central function of the core of the learning system. A particular learning process was defined as a complex of such operations. In studio-art courses, many activities occurred: observations, exchange of ideas and reactions, analysis, evaluation, and the making of works of art with any of the variety of media (Barkan, 1965).

In studio-art, the subject was studied from the point of view of the artist; the student was free to work out his own problems. Students had to discover the content of their studies through their own work and out of their own experiences (Barkan, 1965). Students,

however, wanted to learn and acquire skills from the more accomplished work of other masters and teachers (Mayer, 1975).

Michael (1980) cited that, in teaching studio-art, the operation of the teaching process was to motivate by confronting the student with the task of discovering his or her own qualitative problem. Aside from that, the student sometimes needed help in clarifying ideas, and making wiser choices of materials through which to express thoughts in working out questions of technique and handling tools (Major, 1941). Thus, the studio-art teacher had to also deal with the matter of techniques and skills. For this process, the lecture-demonstration had more effect on the progress of student work than any other form of instruction did. Demonstration simply meant showing the student the best way to do a particular operation or motion, such as how to use certain tools to give the desired effect in the shortest possible time.

Nuweir (1977) stated that one of the first steps of demonstrations was the preparation of the area, tools, and art materials that the teacher was going to use. Students gathered around the teacher who proceeded to demonstrate the process. The act of showing was often stopped so that the steps in the production could be analyzed and discussed.

Besides working with large groups in the studio, the teacher worked with any student who needed help, or perhaps with small groups working on problems. Thus, demonstration in the same tasks was usually repeated several times until students got the feel of it. Nuweir also described the difficulties in the process of

demonstration as follows:

1. As the group of students gathered around the teacher, during a demonstration many students stood behind each other, which meant that not all students in the group can see, hear, and understand clearly. It might have been difficult for some of them to follow the demonstration.

2. The teacher needed to repeat the same demonstration several times in one class period if he helped individual students.

3. The class time was too limited.

Kelly (1972) found that many college and university art departments were extremely deficient in their facilities. With trends moving toward specialized disciplines (i.e., painting, sculpture, and printmaking), more specialized equipment had to be added. This additional equipment made more demands on studio space. As a department expanded to include graduate study, it became essential to permanently assign space and workshops for advanced students. Technical workshops could service only limited numbers of people, and a department might deny future qualified students due to lack of space, or it might enlarge the class size, which in turn promoted inefficiency.

The previous facts supplied substantial evidence that art departments and art teachers were facing some difficulties in teaching studio-art. By employing instructional media, teachers could shorten the time needed for demonstrations and provide good visibility and sound for all students. In his study, Schwalbach (1966) found that in the art department at Iowa State University, art teachers discovered

that, with the use of instructional media, it was possible to teach more people effectively in large groups. He also mentioned that with newer developments in instructional media techniques it would be easier to teach students the concept of how designs and drawings develop and grow in the mind of the artist.

Nuweir suggested that studio-art teachers may use motion pictures or video tape which illustrate the fundamental principles of art. They may also be used to illustrate techniques and skills, such as mixing the colors, handling the art materials and tools, and preparing canvas, as well as techniques in drawing, painting, sculpture, printmaking, and other media. There were endless subjects and topics that could be taught with instructional media in studio-art courses. The teacher's time could be reallocated for the more important function of encouraging creative expression rather than drilling on art, principles or individually repeating what had already been discussed.

Schwalbach (1966, p. 10) stated that "large masses of people, complexities of the various publics, inadequacies of time, geographical remoteness and public pressure to produce tangible results all necessitate a complete use of the modern technology." A report by the Commission on Instructional Technology regarding the potential use of technology in instruction indicated that

1. Technology could bring about far more productive use of teacher's and student's time.

2. Instructional technology could extend the scope and power of instruction.

3. Technology could alleviate inequities caused by economics and geography.

Effectiveness of Instructional Media

Wells (1976) wrote that to determine the effectiveness of instructional media, comparisons were usually made with traditional instruction. He pointed out two problems in comparison: (1) there was no clear definition of traditional instruction, and (2) it was difficult to specify precise experimental controls for the studies.

Another potential explanation for the difficulty in comparing instructional media may be the relative advantage of one instructional medium for some element of instruction. Briggs et al. (1967) stated that

> When a course's length[y] or sequence, representing several kinds of learning, is prepared in two different media and the results analyzed, the most frequent result is a failure to demonstrate a significant difference. One reason for such a finding could be that each of the media compared was more effective for some elements of instruction and less effective for other elements, so that the differences in effectiveness among media were cancelled in the overall analysis (p. 24).

The idea that new research should be directed toward uncovering specific situations for which a particular instructional media technology might be significantly effective was not new. Spence (1928) stated that

> The problem that must be solved is not the question 'Is Method A better than Method B or Method C?' but rather, 'What are the conditions under which Method A produces more effective results?' (p. 454).

The measure of effectiveness itself imposed some difficulties.

The effectiveness of instructional media could be evaluated against a variety criteria, such as "the student's performance, visibility of presentation, comprehensibility, general satisfaction and pleasantness, mutual communication, time consumed, loads, costs, etc." (Sakamota, 1978, p. 262). Student achievement, time saved, and general satisfaction, however, constituted the measure of instructional media effectiveness most frequently used in the literature.

Instructional Media

Programmed Instruction (PI)

By far the largest category of media research was programmed instruction. In recent years, the intensive evaluation of programmed instruction had lessened. In most of the studies, the instructional effectiveness of programmed materials was compared with that of traditional instruction involving textbooks, lecturing, etc.

In reviewing 15 field experiments, Silberman (1962) found that all of them indicated that programmed instruction took less time to complete than traditional instruction. In addition in nine of the studies, students in PI groups scored higher than their counterparts. Lysaught and Williams (1964) confirmed these findings.

In a more recent study, Lange (1972) reported that between 1960 and 1964 112 studies were conducted; of these studies, 41 percent showed PI to be superior, 49 percent found no difference, and 10 percent found PI to be inferior to traditional instruction. Zoll (1969) undertook a literature review of 35 studies and reported that

the most common conclusion was that no significant differences were apparent; of the 35 studies reported on by Zoll, ten indicated favorable student attitudes toward PI. Alton (1966) and Little (1967) indicated, however, that student interest decreased with time.

Therefore, it was natural to ask in what area studied was PI effective and for whom? A wide range of examples in the use of PI may be cited; Diamond (1966) used a programmed booklet to teach art history, Daniel and Murdoch (1968) used a programmed text on statistical methods, Brigham (1970) used a programmed text to teach fundamental concepts of music theory. Diamond, Daniel et al., Brigham, and Bullmer found that students in the PI group performed better than students receiving traditional instruction. Wilds and Zachart (1966) used PI in gynecologic oncology, Barnes (1970) explored the effectiveness of PI in the physical science laboratory, Unwine (1966) used PI with first year undergraduate engineering courses, Giese and Stockdale (1966) used a PI text in English grammar, and Alexander (1970) used PI in vocabulary growth. Wilds et al., Barnes, Unwine, Giese et al., and Alexander found no significant differences between programmed and traditional instruction.

In an extensive study, Johnson (1966) compared three different programmed textbooks and two conventional texts in 21 algebra classrooms. He found that one of the conventional texts was the most satisfactory for each of the three ability levels--low, middle, and high--but superior achievement results were obtained by high and middle ability level students using PI units.

Another area of research concerned the effects of individual

difference. Williams (1963), studying intelligent students, and Tobias (1969), studying creative students, found that these groups of students profit from PI more than other students in terms of speed of learning and achievement.

One of the larger experiments, conducted nationwide, was the efficiency of programmed materials in teaching core micro- and macro-economics. It was reported by Attiyeh, Bach, and Lumsden (1969). In this study involving 48 colleges and universities and 4,121 students, the researcher's primary objective was to compare the performance of students using programmed instruction, either by themselves or as a supplement, with that of students participating in a conventionally-taught basic economics course. Based on test results, student performance analyses revealed the following:

1. On the average, by spending 12 hours studying a programmed text, a student learned practically as much economics as did a student in seven weeks of a traditionally taught course.

2. On the basis of the test question breakdowns, a student who used only programmed materials, as compared to a traditionally-taught student, performed better on the application of theory than on simple concept recognition.

3. The student had a generally positive attitude toward programmed instruction.

Another example of the effectiveness of PI is Doty and Doty (1964). The authors studied the effectiveness of a programmed unit whose subject matter was phsiological psychology. They were interested in the correlations between the PI achievement as measured by the test

and student characteristics. They found that achievement on the PI unit was significantly related to GPA, social need, and creativity. On the basis of the research to date, it was reasonable to conclude that PI was generally as effective as traditional instruction and might result in decreasing the amount of time required for a student to achieve specific educational goals.

Television, Video Tape, and Motion Pictures

There were several research studies on the instructional effectiveness of television, video tape, and motion pictures. However, the conclusions reached by the researchers were based mainly on research at elementary and secondary grade levels. The degree to which these conclusions might be valid for instruction at the college level had not been adequately tested by recent media research.

Television (ITV). Major review of literally hundreds of comparative effectiveness studies concluded that, in general, no significant differences were found between instructional television and conventional methods of instruction (Allen 1971, Campeau 1966, Chu and Schramm, 1967, Dubin, Hedley, Schmidbeaner, Goldman and Traveggia 1969, McKeachie 1967, Reid and McLenan 1967, and Twyford 1969).

Dubin and Hedley (1969) provided a more detailed survey of the effectiveness of ITV at the college level. They reported on 191 comparisons, of which 53 percent favored ITV and 47 percent favored traditional instruction, although there were no significant differences in student achievement.

Chu and Schramm reviewed 207 studies involving 421 separate

comparisons. They stated that instructional television was less effective at the college level than at the high school or grade school levels. At the college level, results of 235 comparisons indicated that 176 found no significant differences in student achievement between televised and traditional instruction. McKeachie (1967) cited his own and other research in support of his conclusion that television is less effective than traditional instruction for college and university students.

Many research studies comparing cooperative ITV with conventional instruction could be cited to show the superiority of the "cooperative" approach. C. F. Kelly (1964) made over 300 such matched achievement test comparisons between 1956-1961 in the areas of mathematics, English, science, and social studies. Kelly found that students generally exhibited good learning achievement when television was used as a regular resource. In fact, significantly higher achievement scores were made by the television groups in one out of every four comparisons.

Smith (1968a, 1968b) conducted a series of experiments to obtain evidence on the effect of television broadcasts on learning achievement and attitudes of students taking technical courses at colleges in England. The experiment involved students in 27 technical colleges where the BBC television series on engineering science was broadcast. At most of the colleges, all participants watched the television series; however, eight of the colleges contributed students to both the experimental and control groups of the 862 students. Analysis of pooled test data from all 27 colleges indicated that the two groups were matched on the measure of verbal and non-verbal mental ability.

However, there also were no significant differences between groups on the achievement test used to assess the instructional effects of the two treatments.

The investigator conducted an analysis of combined data from the eight colleges contributing to both experimental and control groups. Students who had the television broadcasts did better on the whole on the engineering science test and had more favorable attitudes toward the course than those who had not seen the broadcasts.

The research suggested that television broadcasts appeared to have a greater impact on students who were above-average in ability and to have more effect on performance in mechanics. The investigator suggested that visual presentation of subject matter might be especially helpful in teaching a subject requiring spatial thinking.

Chu and Schramm (1967) drew many conclusions relevant to attitudes toward ITV. They first cited that

> The research evidence make attitudes toward instructional television seem rather more favorable than one would expect from the experience reports that circulate. Regardless of this evidence there is good reason to think that some resistance among teachers has been aroused whenever and wherever television has been introduced for purposes of direct teaching (p. 111).

Some of their conclusions were as follows:

> 38. Administrators are more likely to be favorable toward ITV than are teachers (p. 116).
>
> 40. At the college level, students tend to prefer small discussion classes to television classes, television classes to large lecture classes (p. 119).
>
> 43. Liking ITV is not always correlated with learning from it (p. 123).

Dubin and Hedley (1969) presented a more optimistic view of attitudes toward ITV by college professors and students. They found

that professors were generally favorable toward ITV. Junior faculty and faculty who had taught a number of large lecture classes tended to favor the instruction of ITV.

Dubin and Hedley also found that students had more favorable attitudes toward ITV after they had experienced it than before. If, however, the choice was between an ITV and traditional instruction in the form of a large lecture course, typically over hald the students preferred ITV. They 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. He will take whatever method or medium of instruction is offered, damn or praise it on its merits, and set on with the business of pursuing his college education (p. 86).

ITV could teach all levels and subject matters about as effectively as traditional instruction, though some evidence indicated that it performed relatively better at lower levels. A significant number of teachers and students had initially negative attitudes toward ITV, but these negative attitudes tended to decline with time.

Video Tape. Although video tape had been used widely in teaching, assessment had been limited to subjective judgments based on direct observation of teaching behavior in the classroom. John R. Boker (1978) evaluated medical students' performance and attitude in response to video tape instruction. He indicated in his findings that the use of well-designed and valid video-taped instruction programs has produced the desired instructional outcomes, and this method of instruction was generally acceptable from the student's point of view. It was noted that this type of program could function as a modest agent of attitude change, at least when measured on a short term basis.

Motion Pictures. The question of what effect integrating motion

pictures into traditional lecture-discussion format had on student learning had been with us for a long time (Moldstad, 1974, p. 391). Rulon (1933) of Harvard University studied what effect the integration of specially designed science films might have on student learning of both factual items and application-type problems. This study produced results in favor of the film-enriched instructional approach.

> This is a classic study still regarded as one of the best designed executed. Also it is one of the few showing the advantages of film in aiding students to apply conceptual understanding of new problem situations (Moldstad, 1974, p. 391).

Courtenay Nelson (1952) wondered what effect, if any, using film in two of ten class periods, normally including only lecture and discussion, would have on student learning in a unit on sulphur. Nelson found that students who had the advantage of seeing the sulphur films did significantly better on the comprehensive examination given at the end of the unit and also on the retention test five weeks later.

Chu and Schramm (1967) concluded that there appeared to be little difference between learning from television and learning from film if the two media were used in the same way. This provided an explanation as to why Reid and McLennan (1967) found that instructional film research exhibited no significant difference from that found for most comparative effectiveness research in instructional television.

Slides

No suitable studies in the instructional effectiveness of slides were found. Some studies, in which slides and filmstrips were used in combination with other media, were cited under multiple media.

Filmstrips

Few comparative studies had been undertaken to assess the effectiveness of integrating filmstrips in college instruction situations, even though surveys had revealed filmstrips to be one of the most-used media of instruction.

Overhead Transparencies

At the University of Texas, Chance (1960) and two other instructors of descriptive geometry in engineering studied what effect the additional use of 200 specially prepared transparencies would have on student learning. In comparing this instructional approach (transparencies plus current practice) with their traditional lecture-discussion approach covering identical content, the researchers concluded the following:

1. The group having the added use of the transparencies did significantly better on mean final course examination scores and final course grades.

2. The three faculty members agreed on the desirability of using these transparencies in their teaching.

3. Use of the transparencies resulted in an average savings of 15 minutes per class period.

4. Students reported overwhelming preference for instruction using transparencies.

Radio (IR)

Beginning in the 1920's, instructional radio was widely used in the United States, but with the advance of television, its use had

declined. Since IR had been used infrequently in recent years, available evaluation of its effectiveness was limited. Some recent studies had been conducted, but merely to illustrate that radio had been used to present educational content under unusual and diverse conditions. Two surveys reviewing the effectiveness of IR were found. One was a Chu and Schramm (1967) review and the second was a paper by Forsythe (1970). Chu and Schramm (1967) concluded that radio, when appropriately supplemented by visual material, could teach effectively, and for many purposes, as effectively as other media.

Forsythe concluded that

> Research clearly indicated that radio is effective in instruction. Experimental studies comparing radio teaching with other means or media have found radio is as effective as the so called 'conventional methods'. . . Also, the efficiency of combined audio and visual media has been challenged by studies which show that multi-channel communications may not be inherently more effective than single channel presentations (p. 12).

McLuhan (1964) concluded from the findings that students learned more about the structure of preliterate language from radio teaching than they did from lecture.

Tape Recordings

Reviews of research of Chu and Schramm (1967), McKeachie (1967), and Torkelson and Driscoll (1968) on the use of tape recorders in the language laboratories to present foreign language sounds indicated that there was very little experimental evidence as to the value of such recordings, especially at the college level.

Stuck (1970) conducted an investigation of the relative effectiveness of audiotutorial and lecture methods of teaching concepts of

school law. The experimental group learned individually by means of tape recordings in audiotutorial booths. The control group attended live lectures which covered the same legal concepts. The authors concluded that the audiotutorial technique was superior in teaching this subject matter. Menne, Hannum, Klingensmith, and Nord (1969) found no significant difference between tapes and live lectures in introductory college psychology courses.

Popham (1961) divided an introductory graduate level course into two sections. In one, he taught in a traditional format; in the other, he played a tape-recorded version of the lecture and then led a brief discussion. Popham found no significant differences between the two sections.

Menne, Klingensmith, and Nord (1969) extended Popham's work by providing each student with a tape recorded and complete set of taped lectures for an introductory psychology course. For two academic quarters, they compared students who took the course solely from audiotape with students who took it in a lecture. They found a clear advantage in using tape for the lowest quartile, but for the others there was no difference.

Radio and tape recordings have been used extensively for formal classroom instruction. There existed, however, only a limited number of good evaluations of the effectiveness of radio and tape recordings. These evaluations indicated that if supplemented by appropriate visual materials they could be used to teach most subjects as effectively as traditional instruction.

Multiple Media

The application of a "systems concept" in instructional development had resulted in many multimedia systems designed to provide more effective and efficient instruction. Research studies compared new multimedia approaches with more traditional instruction.

Spark and Unbehaun (1971) reported of a study done at Wisconsin State University at La Crosse to evaluate the achievement of students using an audiotutorial program as compared with student performance in a conventional biology course. Test results indicated that students in the experimental group (audiotutorial) did significantly better than students in the control (lecture-discussion) group.

Meleca's (1970) study provided additional evidence that students enrolling in audiotutorial sections achieved significantly more than students in conventional lecture-laboratory sections. In addition to audiotutorial laboratory systems where audiotape was the primary instructional medium, other types of multimedia systems were emerging where several media alternatives were offered students in open-laboratory environments.

Edward, Williams, and Roderrick (1968) reported a variation of the audiotutorial science laboratory. The business students from Lansing Community College were subjects in two studies designed to compare their performances in learning beginning typing and business machine operation when taught by two different methods. Students in the experimental group attended an open laboratory and received instruction through programmed materials and printed instruction sheets, continuous-loop, sound films, tape-slide sets, and drill tape while the control groups were taught in the traditional manner.

In both courses, the students using the audiotutorial approach learned significantly more than the control groups as measured by end-of-term performance exainations. Students generally preferred the audiotutorial, open-laboratory method of learning.

Stuck and Manett (1970) investigated another autiotutorial approach when teaching 18 concepts of school law and compared its effectiveness with the traditional lecture-discussion method. The investigators indicated that the audiotutorial group's performance was significantly superior to traditionally taught group's performance. An additional significant finding was that the audiotutorial group spent 38.44 percent less time learning the 18 school law concepts.

Rankowski and Galley (1979) studied the effectiveness of multi-media in teaching descriptive geometry where first year engineering students were subjects. The students were divided into two groups. The experimental group received multimedia instruction, including televised programs and 35 mm. slide programs, in addition to classroom lectures. The control group received no media instruction but completed the same assignments and tests. The comparative results were in relation to (1) competency in the subject, (2) achievement, (3) visualization of spatial relationships, and (4) attitude toward the subject. They indicated that the use of television and slides together with an instruction significantly increased the achievement and/or reduced the variance among students.

Computer-Assisted Instructions (CAI)

Evidence of the effectiveness of computer-assisted instruction is beginning to accumulate. In comparing CAI with more traditional

approaches, Hansen (1966) cited,

> One of the most consistent findings with CAI tutorial applications is the marked saving in instruction time along with no loss impost instructional achievement test performance (p. 596).

Bitzer and Boundreaux (1969) used CAI for a course in nursing and found the results supported Hansen's conclusions. Grubb and Selfridge (1964) taught a beginning descriptive statistics course to college students via CAI. Their achievement was compared with those college students receiving instruction in the conventional lecture-discussion mode. The CAI students spent a mean of 5.8 hours instructional and review time and achieved a mean of 94.3 percent. The conventionally-taught students spent a mean of 54.3 hours in lecture, homework, and review time and had a mean score of 58.4 percent.

Schurdak (1965) instructed 48 college students on one section of a Fortran programming course. The CAI students were found to have performed approximately 10 percent better on the criterion measure than comparable students using either a standard or a programmed text. The CAI students also used approximately 10 percent less time to complete the course.

Homeyer (1970) reported results on a similar study and tested the three hypotheses listed below:

H_1 -- The CAI group can complete course instruction faster than the lecture group. This hypothesis was accepted.

H_2 -- The CAI group makes significantly few personal visits to the instructor. This hypothesis was rejected.

H_3 -- There is no significant difference between the CAI and lecture groups with respect to mean scores on examinations.

This hypothesis was accepted.

As in other methods of instruction surveyed in this report, no uniform conclusions could be drawn about the effectiveness of CAI. At the college level, a conservative conclusion was that CAI was about as effective as traditional instruction when it was used as a replacement. It might also result in substantial savings of student time in some cases.

Summary

In studio-art courses, specific learning activities are based on the individual and his or her problems (Barkan, 1965). These needs might be described in the form of knowledge or skills in techniques and tools (Major, 1941), creating complexity in the job of the art teacher (Nuweir, 1977). Besides this complexity--large class size--limitations of time and public demand for productivity improvement have caused some of the problems art departments confronted today (Kelly, 1972). The limited space and inadequacy of time affected the teacher's performance in studio-art courses (Nuweir, 1977).

The broader use of instructional media in studio-art courses was an enormous help in solving part of those problems (Ely, 1973). Art students could learn easily and effectively in spite of the concerns noted above (Schwalbach, 1966). The results of a large portion of research showed that students learned effectively through the use of all media reviewed.

All instructional media attempted to improve the quality of

instruction. Nevertheless, findings of no significant difference between the effectiveness of media seemed to dominate the research literature (Menne, Hannum, Klingensmith, and Nord 1969, Reid and McLennan 1967). Allen (1971) and Chu and Schramm (1967) conducted studies of media effectiveness which indicated that media was as effective as traditional methods of instruction; however, Homeyer (1970) reported a saving in student learning time, and Dubin and Hedley (1969), Attiyeh, and Bach and Lumsden (1969) indicated that students and teachers had favorable attitudes toward instructional media after gaining experience with them. Additional research in the area appeared warranted.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

The purpose of this chapter was to present procedures that were used to answer the research questions presented in Chapter I of this study. Discussion was divided into the following sections: (1) Design, (2) Instrumentation, (3) Data Collection, and (4) Data Analysis.

Design

It was very discouraging to discover that no serious attempts had been made to discover the effectiveness of instructional media that were being used in teaching studio-art courses. It was only through a research survey that we could hope to come to a description of existing conditions and be able to generate understanding by studying these current conditions.

This study used a survey research design. Meyers and Grossen (1978) explained survey research design as follows:

> We define the survey technique as any procedure involving the investigator entering a subject population and measuring some specific set of responses. In this technique you will find neither the manipulation of an independent variable nor the setting-up of a control condition. The survey is more like a probe to describe the state of affairs existent in the population at any one time (p. 191).

In continued consideration, Meyers and Grossen state that

> Each methodology is designed to answer particular types of questions, and in so doing defines the advantages enjoyed by the methodology. We have outlined below some of the advantages of the survey techniques:
> 1. At the very least, it can supply information regarding the opinions, attitudes, and so on of a population on a given issue.
> 2. It can be used to answer questions (i.e., test hypothesis) the scientist has generated before starting the research. . .
> 3. It may provide a basis for deciding how to deal with certain issues.
> 4. The survey technique may provide a source for new hypothesis. . . (p. 191).

The population of this study consisted of all studio-art teachers in all colleges, universities, and art schools that had an accredited art department and that offered a certificate and/or two-year and/or four-year degree which were located in the 50 states throughout the nation. Data concerning the population were obtained from the American Art Directory 1982. From this document, one hundred fifty (150) art schools, colleges, and universities were selected. A concern of this study was to draw conclusions regarding the use and effectiveness as perceived by different instructional media groups. In a research survey which was observational in nature, the investigator could not assign subjects to groups. Subjects assigned themselves to groups according to their frequency of media usage. Thus two art-teachers differed systematically in many ways, apart from use of instructional media, that contributed to their effectiveness in teaching studio-art courses. Consequently, comparisons of the overall perceived effectiveness of experienced art-teachers in well-known art schools

with heavy work-loaded art teachers from small two-year colleges would be biased in favor of one group and heavily biased against the other.

To avoid such biases, 150 institutions were selected: as 20 art schools, 45 junior colleges, and 85 senior colleges and universities. This selection was made according to the total number of the population as noted in Table I.

TABLE I

POPULATION AND NUMBER OF INSTITUTIONS

Type of Institution	Population	Number of Randomly Selected Institutions
Art Schools	262	20
Junior Colleges	443	45
Senior Colleges and Universities	983	85
Total	1688	150

The American Art Directory 1982 and the college catalogs of the 150 randomly selected institutions were used to obtain the lists of all current studio-art teachers. The sample consisted of 200 teachers

who taught studio-art courses during the Fall Semester (Quarter) of 1983. Subjects of this sample were randomly selected with not more than two from each of the 150 institutions.

Instrumentation

Derived from the literature reviewed in Chapter II, and from the general consideration of the problem noted in Chapter I, three major considerations were identified as a guide to this investigation.

1. Basic data.

2. Purposes and actual usage of instructional media and equipment in teaching studio-art courses.

3. Evaluation concerning the effectiveness of instructional media in studio-art courses.

A mail-out questionnaire was determined to be the most efficient method of applying the research instrument. This determination was particularly true for this investigation since the subjects represented a broad geographic portion of the country.

Oppenheim (1966) stated that the advantage of the mail-out questionnaire for a research study was the low cost and that a large sample could be used at a modest increase in cost. Oppenheim further stated that "By far the largest disadvantage of mail questionnaires, however, is the fact that they usually produce very poor response rates" (p. 33).

Kerlinger (1973) noted that

> Responses to mail questionnaires are generally poor. Returns of less than 40 or 50 percent are common. Higher percentages are rare. At

> best, the researcher must content himself with returns as low as 50 or 60 percent (p. 414).

Kerlinger recommended that "If they (mail questionnaires) are used, every effort should be made to obtain returns of at least 80 to 90 percent or more, . . . " (p. 414).

The questionnaire used in this research contained a set of items which was designed for teachers who taught studio-art courses. The questionnaire was written so that it engaged the respondent's interest. The format of the questionnaire was structured so that the respondent would have no difficulty in recording his response. Skager and Weinbers (1971) stated that

> A good questionnaire is written so that it will engage the respondent's interest. It will usually move from general to more specific questions, from those easiest to answer to those more difficult. The questions should be worded in a nonambiguous manner, with a vocabulary appropriate for the sample to which it is directed. There must be careful preparation to avoid inclusion of leading or loaded questions. It should be easy to tabulate (p. 116).

The format of the questions was based on the attempt to measure facts, preferences, attitudes, and opinions. Factual, objective questions were used in the first part of the questionnaire to provide data about the existing conditions. These tools were intended to give objective information in quantitative form. These questions called for checking the appropriate response. The first two questions, number 1 and 2, were used to obtain general descriptions of the institutions. The data concerning the number of years of teaching experience in studio-art courses was obtained from question number 3. For the purpose of this study, the recent art teacher was

considered as one who had been teaching from one year to ten years. The experienced art teacher was defined as the one who had been teaching eleven years or more. Question number 4 of the questionnaire was used to provide the study with the information needed concerning the size of studio-art classes. The small art class was considered as one with 1-12 students, and the large class was the one with 13 or more students. This part of the questionnaire was used to obtain more descriptive conditions to be used later in the analysis of the data that allowed for more conclusions.

The second part of the questionnaire (question numbers 5-7) was concerned with the actual use of instructional media in teaching studio-art courses and their objective. The questions were stated clearly to minimize any misinterpretation. These questions were used to identify instructional media equipment and material used and their potential to be used later in the analysis of the data.

The last part of the questionnaire, question number 8, which measured teachers' attitudes toward instructional media, was of Likert-Type scale construction having five response alternatives ranging from greatly increased to greatly reduced. This question was used to test hypotheses numbers 1 to 9 in this study.

The validity of the instrument was established by submitting the first draft of the questionnaire to three authorities in art education for criticism. These individuals analyzed each item, to be sure of its ability to measure what it claimed, and of its adequacy to sample situations about which conclusions were to be drawn.

Tuckman (1972) said,

> The validity of a test represents the extent to which a test measures what it purposes to measure. In simple words, does the test really measure the characteristic that it is being used to measure? (p. 137).

The reliability of this study was established by the test-retest method. Roscoe (1969) said,

> The most obvious method for determining reliability of a test calls for administrating it to the same sample on two different occasions, the defining reliability as the Pearson product moment correlation between the two set of scores. This method assumed that it is practical and valid to administer the test to the same group of persons twice in a relatively short period of time (p. 103).

Initial pilot test was given to a sample of 12 teachers who were randomly selected by drawing their names from art departments of colleges and universities in Oklahoma. The same test was administered to the respondents. Each person's performance on both testings was compared, and there were no significant differences in their answers when they were compared to their first responses. The reliability coefficient was approximately .95. Therefore, the questionnaire was considered reliable.

Data Collection

A sample of 200 studio-art teachers was randomly selected from the lists of 150 institutions obtained from the American Art Directory 1982 and respective college catalogs. Kerlinger (1973) said, "Random samples can often furnish the same information as a census (an enumeration and study of an entire population) at much less cost, with greater efficiency, and sometimes greater accuracy" (p. 411). The selection made represented an attempt to provide a

variety of examples involving size and type of institution. The 200 studio-art teachers were stratified randomly according to categories--art school, junior college, and senior college--as shown in Table II.

TABLE II

THE NUMBER OF TEACHERS RANDOMLY SELECTED FOR THIS STUDY

Type of Institution	Number of Institutions		Number of Teachers	
Art Schools	20	13%	30	15%
Junior Colleges	45	30%	68	34%
Senior Colleges and Universities	85	57%	102	51%
Total	150	100%	200	100%

The questionnaire was distributed by mail on September 10, 1983 to the individual teachers of the sample of 200 studio-art teachers used in this study. Teachers were asked to complete the questionnaire and return it to the researcher within five days. One hundred and two responses were received. Thus, 51 percent of the questionnaires

sent out had been returned during the two weeks of initial mailing. The "follow up" letters were sent on October 3, 1983 to motivate the nonrespondents to complete the questionnaire. The total number of responses was 171. Four out of these 171 did not complete the questionnaire because they are "art historians," who did not teach studio-art courses. The number of respondents that taught studio-art courses was 167, about 83.5% of the sample. By deducting the four art history teachers from the actual sample of 200, the corrected sample is 196.

The New Sample Size	Number of Studio-Art Teachers Responded	Percentage of The Total Respondents
196	167	85.2

Hopkins (1976) said,

> . . . 50 percent is adequate for analysis and reporting; 60 percent is good; and 70 percent is very good. However, lack of response bias is associated with high response rate (147).

Details of the actual number and percentages of respondents of the sample of various type of institutions were displayed in Tables III and IV.

Data Analysis

The Chi-Square Test for Independence was used to determine whether there was a significant relationship between the perceived effectiveness and the use of instructional media in teaching studio-art courses. The T-Statistic was computed from the 2x2 contingency table. Yates' correction for contingency was applied since there was only

one degree of freedom. The decision rule was to reject null hypothesis if the T-Statistic exceeded the Chi-Square value obtained from Table of Chi-Square distribution. The level of significance was .01. Descriptive statistics were used to describe the extent and purposes of the use of instructional media.

TABLE III

NUMBER OF ART TEACHERS WHO RECEIVED QUESTIONNAIRE OF VARIOUS TYPES OF INSTITUTION

Type of Institution	The Number of Teachers Receiving Questionnaire	The Number of Responses Not Studio-Art Teachers	The Actual Number of Studio-Art Teachers Receiving Questionnaire
Art Schools	30	0	30
Junior Colleges	68	1	67
Senior Colleges and Universities	102	3	99

TABLE IV

ACTUAL NUMBER AND PERCENTAGES OF RESPONDENTS OF VARIOUS TYPES OF INSTITUTION

Type of Institution	The Actual Number of Studio-Art Teachers Who Receiving The Questionnaire	The Number of Studio-Art Teachers Who Responded to The Questionnaire	Percentage of Total Respondents Within Type of Institution
Art School	30	26	15.57
Junior Colleges	67	63	37.72
Senior Colleges and Universities	99	78	46.71
Total	196	167	100

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

This study was concerned with the effectiveness and the use of instructional media in teaching studio-art courses. The major focus of the study was to determine the extent of relationship between the effectiveness and the use of instructional media. This chapter presented the descriptive analysis of each individual instructional media and the statistical testing of hypotheses. Both parts provided information regarding the extent of the use of instructional media and the purposes and perceived effectiveness of the studio-art teachers in using instructional media.

Hypothesis One: Programmed Instruction

Descriptive Analysis

Data presented in Table V showed that, from the subjects of 167 studio-art teachers that were used in this study, 33 teachers responded to the actual usage of programmed instruction in teaching studio-art courses--9.09 percent of 33 responses were from art schools, 51.52 percent from junior colleges, and 39.39 percent from senior colleges and universities.

TABLE V

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF PROGRAMMED INSTRUCTION

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	3	9.09
Junior Colleges	17	51.52
Senior Colleges and Universities	13	39.39
Total	33	100.00

Data in Table VI revealed that the four teachers who responded to the actual usage of programmed instruction were from small institutions of under 300 students, representing 12.12 percent of the 33 cases; 13 teachers (39.39 percent) were from institutions with student populations between 300-2499; 14 teachers (42.43 percent) were from institutions with student populations between 2500-14999; and two teachers (6.06 percent) were from institutions with student populations larger than 15000.

Data presented in Table VII indicated that from the subjects of 33 teachers who responded to the actual usage of programmed instruction in teaching studio-art courses, nine teachers (27.27

percent) had 6-10 years of teaching experience, eight teachers (24.24 percent) had 11-15 years of teaching experience, and 16 teachers (48.49 percent) had more than 16 years of teaching experience.

TABLE VI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF PROGRAMMED INSTRUCTION SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Under 300	4	12.12
300-2499	13	39.39
2500-14999	14	42.43
15000 or more	2	6.06
Total	33	100.00

Data in Table VIII indicated that the 33 studio-art teachers used programmed instruction in teaching 161 studio-art classes: 13 (8.07 percent) of 161 classes had 1-5 students, 34 (21.12 percent)

classes had 6-12 students, 104 (64.60 percent) classes had 12-24 students, and 10 (6.21 percent) had more than 25 students.

TABLE VII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF PROGRAMMED INSTRUCTION SCALE BY YEARS OF TEACHING EXPERIENCE

Teaching Experience	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
0-5	0	0
6-10	9	27.27
11-15	8	24.24
16 or more	16	48.49
Total	33	100.00

Data in Table IX revealed that from 33 teachers who responded to the actual usage of programmed instruction: 14 teachers (42.42 percent) used programmed instruction in teaching drawing courses, eight teachers (24.24 percent) used it in teaching painting courses, 13 teachers (39.39 percent) used it in teaching design courses, five teachers (15.15 percent) used it in teaching printmaking, two

teachers (6.06 percent) used it in teaching sculpture courses, five teachers (15.15 percent) used it in teaching ceramics, four teachers (12.12 percent) used it in teaching photography courses, and two teachers (6.06 percent) used it in teaching other studio-art courses.

TABLE VIII

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED PROGRAMMED INSTRUCTION SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	13	8.07
6-12	34	21.12
13-24	104	64.60
25 or more	10	6.21
Total	161	100.00

Data in Table X revealed the purposes for which programmed instruction had been used in teaching studio-art courses. Fourteen teachers (42.42 percent) used programmed instruction to demonstrate, 13 teachers (39.39 percent) used programmed instruction to motivate, nine teachers (27.27 percent) to supplement, and 25 teachers (75.76

percent) to convey basic knowledge. Ranked according to the frequency of choice of the respondents, the categories were as follows:

1. To convey basic knowledge.
2. To demonstrate.
3. To motivate.
4. To supplement.

TABLE IX

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF PROGRAMMED INSTRUCTION SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	14	42.42
Painting	8	24.24
Design (Graphic)	13	39.39
Printmaking	5	15.15
Sculpture	2	6.06
Ceramics	5	15.15
Photography	4	12.12
Others	2	6.06
Total Sample (33)		

TABLE X

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF PROGRAMMED INSTRUCTION ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	14	42.42
To Motivate	13	39.39
To Supplement	9	27.27
To Convey Basic Knowledge	25	75.76
Others	0	0
Total Sample (33)		

Test of Hypothesis One

A random sample of 167 art teachers who responded to the use of programmed instruction in teaching studio-art courses was classified according to frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables I, A to E (See Appendix E).

In order to test the null hypothesis that effectiveness (A,B, C,D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2

contingency tables. The T-statistic and its degrees of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were listed in Table XI.

Hypotheses One A,B,C, and E. There is no relationship between the use of programmed instruction in teaching studio-art courses and effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (E) class size. As indicated in Table XI, these hypotheses were rejected since there were significant relationships between the use of programmed instruction in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (E) class size at .01 significance level.

Hypothesis One D. There is no relationship between the use of programmed instruction in teaching studio-art courses and effectiveness in terms of (D) time consumed. As noted in Table XI, this hypothesis was not rejected. No relationship between the use of programmed instruction in teaching studio-art courses and the effectiveness in terms of (D) time consumed was discerned at the .01 significance level.

Hypothesis Two: Television, Video Tape, and Motion Pictures

Descriptive Analysis

Data in Table XII revealed that 101 art teachers responded regarding actual usage of television, video tape, and motion pictures in teaching studio-art courses, four teachers (3.96 percent) of the 101 responses were from art schools, 46 teachers (45.54 percent) were from junior colleges, and 51 teachers (50.50 percent)

TABLE XI

SUMMARY FOR TEST OF HYPOTHESIS ONE

Hypothesis One	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A. Student Performance	63.91	1	6.635	Reject H_0.	0.53
B. Student Satisfaction	72.22	1	6.635	Reject H_0.	0.55
C. Teacher Performance	58.03	1	6.635	Reject H_0.	0.51
D. Time Consumed	5.55	1	6.635	Do not reject H_0.	0.18
E. Class Size	33.18	1	6.635	Reject H_0.	0.41

were from senior colleges and universities.

TABLE XII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TELEVISION, VIDEO TAPE, AND MOTION PICTURES

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	4	3.96
Junior Colleges	46	45.54
Senior Colleges and Universities	51	50.50
Total	101	100.00

Data in Table XIII revealed that three art teachers (2.97 percent of the 101 valid cases who responded to the actual usage of television, video tape, and motion pictures in teaching studio-art courses) were from institutions with a student population under 300, 37 art teachers (36.63 percent) were from institutions with student populations between 300-2499, 49 art teachers (48.52 percent) were from institutions with student populations between 2500-14999, and 12 art teachers (11.88 percent) were from institutions with student

populations larger than 15000.

TABLE XIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TELEVISION, VIDEO TAPE, AND MOTION PICTURES SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	3	2.97
300-2499	37	36.63
2500-14999	49	48.52
15000 or more	12	11.88
Total Sample	101	100.00

Data in Table XIV revealed that five art teachers (4.95 percent) of the 101 art teachers who responded to the use of television, video tape, and motion pictures in teaching studio-art courses had 0-5 years of teaching experience, 22 (21.78 percent) had 6-10 years of teaching experience, 28 art teachers (27.72 percent) had 11-15 years of teaching experience, and 46 art teachers (45.55 percent) had more than 16 years of teaching experience.

TABLE XIV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TELEVISION, VIDEO TAPE, AND MOTION PICTURES SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teacher	Percentage of Total Sample Within Category
0-5	5	4.95
6-10	22	21.78
11-15	28	27.72
16 or more	46	45.55
Total Sample	101	100.00

Data in Table XV indicated that 23 classes (7.52 percent) from 101 art teachers who used television, video tape, and motion pictures in teaching studio-art courses, had 1-5 students, 88 classes (28.76 percent) had 6-12 students, 168 classes (54.90 percent) had 13-24 students, and 27 classes (8.82 percent) had more than 25 students.

Data in Table XVI indicated that 38 art teachers (37.62 percent) of the 101 valid cases used television, video tape, and motion pictures in teaching drawing courses, 35 art teachers (34.65 percent) used television, video tape, and motion pictures in teaching painting courses, 38 art teachers (37.62 percent) used television, video tape, and motion pictures in teaching design courses, 16 art teachers

(15.84 percent) used television, video tape, and motion pictures in teaching printmaking courses, 27 art teachers (26.73 percent) used television, video tape, and motion pictures in teaching sculpture courses, 21 art teachers (20.79 percent) used television, video tape, and motion pictures in teaching ceramics courses, 18 art teachers (17.82 percent) used television, video tape, and motion pictures in teaching photography, and eight art teachers (7.92 percent) used television, video tape, and motion pictures in teaching other studio-art courses.

TABLE XV

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED TELEVISION, VIDEO TAPE, AND MOTION PICTURES SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	23	7.52
6-12	88	28.76
13-24	168	54.90
25 or more	27	8.82
Total Number of Classes	306	100.00

TABLE XVI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TELEVISION, VIDEO TAPE, AND MOTION PICTURES SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	38	37.62
Painting	35	34.65
Design (Graphic)	38	37.62
Printmaking	16	15.84
Sculpture	27	26.73
Ceramics	21	20.79
Photography	18	17.82
Others	8	7.92
Total Sample (101)		

Data in Table XVII revealed the purposes for which television, video tape, and motion pictures were used in studio-art courses. Forty-six art teachers (45.54 percent) used them to demonstrate, 63 art teachers (62.38 percent) used them to motivate, 68 art teachers (67.33 percent) used them to supplement, and 61 art teachers (60.40 percent) used them to convey basic knowledge. Ranked according to

the frequency of choice of the respondents, the categories were as follows:

1. To demonstrate.
2. To supplement.
3. To motivate.
4. To convey basic knowledge.

TABLE XVII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TELEVISION, VIDEO TAPE, AND MOTION PICTURES ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	46	45.54
To Motivate	63	62.38
To Supplement	68	67.33
To Convey Basic Knowledge	61	60.40
Others	0	0
Total Sample (101)		

Test of Hypothesis Two

A random sample of 167 art teachers who responded to the use of television, video tape, and motion pictures in teaching studio-art courses were classified according to frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables II, A to E (See Appendix E).

In order to test the null hypothesis that effectiveness (A,B,C, D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were noted in Table XVIII.

Hypothesis Two A,B,C, and E. There is no relationship between the use of television, video tape, and motion pictures in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (E) class size. As indicated in Table XVIII, these hypotheses were rejected since there were significant relationships between the use of television, video tape, and motion pictures in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (E) class size at .01 significance level.

Hypothesis Two D. There is no relationship between the use of

television, video tape, and motion pictures in teaching studio-art courses and the effectiveness in terms of (D) time consumed. As noted in Table XVIII, this hypothesis was not rejected. No relationship between the use of television, video tape, and motion pictures in teaching studio-art courses and the effectiveness in terms of time consumed was discerned at the .01 significance level.

Hypothesis Three: Slides

Descriptive Analysis

Data from Table XIX indicated that, from the subjects of 167 studio-art teachers that were used in the study, 164 art teachers responded to the actual usage of slides in teaching studio-art courses, 24 art teachers (14.64 percent) were from art schools, 62 art teachers (37.80 percent) were from junior colleges, and 78 art teachers (47.56 percent) were from senior colleges and universities.

Data from Table XX revealed that 15 art teachers (9.15 percent) of 164 art teachers who responded to the actual usage of slides in teaching studio-art courses were from institutions with a student population under 300, 54 art teachers (32.93 percent) were from institutions with student populations of 300-2499, 75 art teachers (45.73 percent) were from institutions with student populations of 2500-14999, and 20 art teachers (12.19 percent) were from institutions with student populations larger than 15000.

Data in Table XXI indicated that 12 art teachers (7.32 percent) of 164 art teachers who responded to the actual usage of slides in

TABLE XVIII

SUMMARY FOR TEST OF HYPOTHESIS TWO

	Hypothesis Two	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	13.19	1	6.635	Reject H_0.	0.27
B.	Student Satisfaction	14.74	1	6.635	Reject H_0.	0.28
C.	Teacher Performance	20.16	1	6.635	Reject H_0.	0.33
D.	Time Consumed	1.31	1	6.635	Do not reject H_0.	0.09
E.	Class Size	17.44	1	6.635	Reject H_0.	0.31

teaching studio-art courses had less than five years of teaching experience, 42 art teachers (25.61 percent) had 6-10 years of teaching experience, 43 art teachers (26.22 percent) had 11-15 years of teaching experience, and 67 art teachers (40.85 percent) had more than 16 years of teaching experience.

TABLE XIX

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF SLIDES

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	24	14.64
Junior Colleges	62	37.80
Senior Colleges and Universities	78	47.56
Total Sample	164	100.00

Data in Table XXII indicated that the 164 art teachers used slides in teaching 500 studio-art classes, 34 classes (6.80 percent) of 500 studio-art classes had 1-5 students, 135 classes (27.00 percent) had 6-12 students, 285 classes (57.00 percent) had 13-24 students, and 46

classes (9.20 percent) had more than 25 students.

TABLE XX

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF SLIDES SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	15	9.15
300-2499	54	32.93
2500-14999	75	45.73
15000 or more	20	12.19
Total Sample	164	100.00

Data in Table XXIII indicated that from 164 art teachers who responded in using slides, 97 art teachers (59.15 percent) used them in drawing courses, 71 art teachers (43.29 percent) used them in painting courses, 63 art teachers (38.41 percent) used them in design courses, 36 art teachers (21.95 percent) used them in printmaking courses, 35 art teachers (21.34 percent) used them in sculpture courses, 34 art teachers (20.73 percent) used them in ceramic courses, 30 art

teacers (18.29 percent) used them in photography courses, and 17 art teachers (10.37 percent) used them in other studio-art courses.

TABLE XXI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF SLIDES SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
0-5	12	7.32
6-10	42	25.61
11-15	43	26.22
16 or more	67	40.85
Total Sample	164	100.00

Data in Table XXIV revealed the purposes for which slides were used in teaching studio-art courses. Eighty-nine art teachers (54.27 percent) used slides to demonstrate, 129 art teachers (78.66 percent) used slides to motivate, 113 art teachers (68.90 percent) used slides to supplement, and 119 art teachers (72.56 percent) used slides to convey basic knowledge. Ranked according to the frequency of choice

of the respondents, the categories were as follows:

1. To motivate.
2. To convey basic knowledge.
3. To supplement.
4. To demonstrate.

TABLE XXII

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED SLIDES SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	34	6.80
6-12	135	27.00
13-24	285	57.00
25 or more	46	9.20
Total Number of Classes	500	100.00

Test of Hypothesis Three

A random sample of 167 art teachers who responded to the use of slides in teaching studio-art courses were classified according to

frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables III, A to E (See Appendix E).

TABLE XXIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF SLIDES SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	97	59.15
Painting	71	43.29
Design (Graphic)	63	38.41
Printmaking	36	21.95
Sculpture	35	21.34
Ceramics	34	20.73
Photography	30	18.29
Others	17	10.37
Total Sample (164)		

In order to test the null hypothesis that effectiveness (A,B,C,D,

E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were listed in Table XXV.

TABLE XXIV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF SLIDES ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	89	54.27
To Motivate	129	78.66
To Supplement	113	68.90
To Convey Basic Knowledge	119	72.56
Others	0	0
Total Sample (164)		

TABLE XXV

SUMMARY FOR TEST OF HYPOTHESIS THREE

	Hypothesis Three	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	1.24	1	6.635	Do not reject H_0.	0.09
B.	Student Satisfaction	2.90	1	6.635	Do not reject H_0.	0.13
C.	Teacher Performance	0.02	1	6.635	Do not reject H_0.	0.01
D.	Time Consumed	1.49	1	6.635	Do not reject H_0.	0.09
E.	Class Size	0.29	1	6.635	Do not reject H_0.	0.04

Hypotheses Three A,B,C,D, and E. There is no relationship between the use of slides in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, (D) time consumed, and (E) class size. As indicated in Table XXV, these hypotheses were not rejected. No relationships between the use of slides in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, (D) time consumed, and (E) class size were discerned at the .01 significance level.

Hypothesis Four: Filmstrips

Descriptive Analysis

Data in Table XXVI indicated that from the subjects of 167 studio-art teachers who were used in this study, 61 art teachers responded to the actual usage of filmstrips in teaching studio-art courses. One art teacher (1.64 percent) was from an art school, 34 art teachers (55.74 percent) were from junior colleges, and 26 art teachers (42.62 percent) were from senior colleges and universities.

Data in Table XXVII revealed that three art teachers (4.92 percent) of 61 art teachers who responded to the use of filmstrips in teaching studio-art courses were from institutions with a student population under 300, 28 art teahcers (45.90 percent) were from institutions with student populations of 300-2499, 27 art teachers (44.26 percent) were from institutions with student populations of 2500-14999, and three art teachers (4.92 percent) were from institutions

with student populations larger than 15000.

TABLE XXVI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF FILMSTRIPS

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	1	1.64
Junior Colleges	34	55.74
Senior Colleges and Universities	26	42.62
Total Sample	61	100.00

Data in Table XXVIII revealed that three art teachers (4.92 percent) of 61 art teachers who responded to the actual usage of filmstrips in teaching studio-art courses had less than five years of teaching experience, 15 art teachers (24.59 percent) had 6-10 years of teaching experience, 19 art teachers (31.15 percent) had 11-15 years of teaching experience, and 24 art teachers (39.34 percent) had more than 16 years of teaching experience.

TABLE XXVII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF FILMSTRIPS SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	3	4.92
300-2499	28	45.90
2500-14999	27	44.26
15000 or more	3	4.92
Total Sample	61	100.00

TABLE XXVIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF FILMSTRIPS SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
0-5	3	4.92
6-10	15	24.59
11-15	19	31.15
16 or more	24	39.34
Total Sample	61	100.00

Data in Table XXIX indicated that the 61 art teachers used filmstrips in teaching 206 studio-art classes, 18 classes (8.74 percent) of 206 studio-art classes had 1-5 students, 63 classes (30.58 percent) had 6-12 students, 107 classes (51.94 percent) had 13-24 students, and 18 classes (8.74 percent) had more than 25 students.

TABLE XXIX

NUMBER AND PERCENTAGES OF STUDIO ART CLASSES IN WHICH ART TEACHERS USED FILMSTRIPS SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	18	8.74
6-12	63	30.58
13-24	107	51.94
25 or more	18	8.74
Total Number of Classes	206	100.00

Data in Table XXX indicated that from 61 art teachers who responded to the use of filmstrips, 29 art teachers (47.54 percent)

of 61 art teachers used them in drawing courses, 22 art teachers (36.07 percent) used them in painting courses, 26 art teachers (42.62 percent) used them in design courses, 14 art teachers (22.95 percent) used them in printmaking courses, seven art teachers (11.48 percent) used them in sculpture courses, 11 art teachers (18.03 percent) used them in ceramic courses, 10 art teachers (16.39 percent) used them in photography courses, and eight art teachers (13.11 percent) used them in other studio-art courses.

TABLE XXX

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF FILMSTRIPS SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	29	47.54
Painting	22	36.07
Design (Graphic)	26	42.62
Printmaking	14	22.95
Sculpture	7	11.48
Ceramics	11	18.03
Photography	10	16.39
Others	8	13.11
Total Sample (61)		

Data in Table XXXI revealed the purposes for which filmstrips were used in teaching studio-art courses. Thirty-four art teachers (55.74 percent) used filmstrips to demonstrate, 32 art teachers (52.46 percent) used them to motivate, 36 art teachers (59.02 percent) used them to supplement, and 42 art teachers (68.85 percent) used them to convey basic knowledge. Ranked according to the frequency of choice of the respondents, the categories were identified as follows:

1. To convey basic knowledge.
2. To supplement.

TABLE XXXI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF FILMSTRIPS ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	34	55.74
To Motivate	32	52.46
To Supplement	36	59.02
To Convey Basic Knowledge	42	68.85
Others	0	0
Total Sample (61)		

3. To demonstrate.

4. To motivate.

Test of Hypothesis Four

A random sample of 167 art teachers who responded to the use of filmstrips in teaching studio-art courses was classified according to frequency of their usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables IV, A to E (See Appendix E).

In order to test the null hypothesis that effectiveness (A,B,C, D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were identified in Table XXXII.

Hypotheses Four A,B,C, and D. There is no relationship between the use of filmstrips in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed. As indicated in Table XXXII, these hypotheses were rejected since there were significant relationships between the use of filmstrips in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed at .01 significance level.

TABLE XXXII

SUMMARY FOR TEST OF HYPOTHESIS FOUR

	Hypothesis Four	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Congingency Coefficient
A.	Student Performance	41.37	1	6.635	Reject H_0.	0.45
B.	Student Satisfaction	40.10	1	6.635	Reject H_0.	0.44
C.	Teacher Performance	42.22	1	6.635	Reject H_0.	0.45
D.	Time Consumed	9.44	1	6.635	Reject H_0.	0.23
E.	Class Size	2.06	1	6.635	Do not reject H_0.	0.11

Hypothesis Four E. There is no relationship between the use of filmstrips in teaching studio-art courses and the effectiveness in terms of (E) class size. As noted in Table XXXII, this hypothesis was not rejected. No relationship between the use of filmstrips in teaching studio-art courses and the effectiveness in terms of class size was discerned at the .01 significance level.

Hypothesis Five: Overhead Transparencies

Descriptive Analysis

Data in Table XXXIII revealed that from the subjects of 167 studio-art teachers who were used in this study, 32 art teachers responded to the actual usage of overhead transparencies in teaching studio-art courses, two art teachers (6.25 percent) were from art schools, 16 art teachers (50.00 percent) were from junior colleges, and 14 art teachers (42.75 percent) were from senior colleges and universities.

Data in Table XXXIV revealed that one art teacher (3.13 percent) of 32 art teachers who responded to the actual usage of overhead transparencies were from institutions with a student population under 300, 12 art teachers (37.50 percent) were from institutions with student populations of 300-2499, 16 art teachers (50.00 percent) were from institutions with student populations of 2500-14999, and three art teachers (9.37 percent) were from institutions with populations larger than 15000.

Data in Table XXXV revealed that six art teachers (18.75 percent)

of 32 art teachers who responded to the use of overhead transparencies in teaching studio-art courses had 6-10 years of teaching experience, eight art teachers (25.00 percent) had 11-15 years of teaching experience, and 18 art teachers (56.25 percent) had more than 16 years of teaching experience.

TABLE XXXIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF OVERHEAD TRANSPARENCIES

Type of Institution	Number of Studio-Art Teachers	Percentages of Total Sample Within Category
Art Schools	2	6.25
Junior Colleges	16	50.00
Senior Colleges and Universities	14	43.75
Total Sample	32	100.00

Data in Table XXXVI indicated that the 32 art teachers used overhead transparencies in teaching 97 studio-art classes, five classes (5.15 percent) of 97 studio-art classes had 1-5 students, 29 classes (29.90 percent) had 6-12 students, 53 classes (54.64

percent) had 13-24 students, and 10 classes (10.31 percent) had more than 25 students.

TABLE XXXIV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF OVERHEAD TRANSPARENCIES SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	1	3.13
300-2499	12	37.50
2500-14999	16	50.00
15000 or more	3	9.37
Total Sample	32	100.00

Data in Table XXXVII indicated that of 32 art teachers who responded to the use of overhead transparencies, 15 art teachers (46.88 percent) used them in drawing courses, four art teachers (12.50 percent) used them in painting courses, 14 art teachers (43.75 percent) used them in design courses, three art teachers (9.38 percent) used them in printmaking courses, two art teachers

(6.25 percent) used them in sculpture courses, six art teachers (18.75 percent) used them in ceramic courses, five art teachers (15.63 percent) used them in photography courses, and two art teachers (6.25 percent) used them in other courses.

TABLE XXXV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF OVERHEAD TRANSPARENCIES SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
0-5	0	0.00
6-10	6	18.75
11-15	8	25.00
16 or more	18	56.25
Total Sample	32	100.00

Data in Table XXXVIII revealed the purposes for which overhead transparencies were used in teaching studio-art courses. Fourteen art teachers (43.75 percent) used overhead transparencies to demonstrate, five art teachers (15.63 percent) used them to motivate,

10 art teachers (31.25 percent) used them to supplement, and 16 art teachers (50.00 percent) used them to convey basic knowledge. Ranked according to the frequency of choices of the respondents, the categories were identified as follows:

1. To convey basic knowledge.
2. To demonstrate.
3. To supplement.
4. To motivate.

TABLE XXXVI

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED OVERHEAD TRANSPARENCIES SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	5	5.15
6-12	29	29.90
13-24	53	54.64
25 or more	10	10.31
Total Number of Classes	97	100.00

TABLE XXXVII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF OVERHEAD TRANSPARENCIES SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	15	46.88
Painting	4	12.50
Design (Graphic)	14	43.75
Printmaking	3	9.38
Sculpture	2	6.25
Ceramics	6	18.75
Photography	5	15.63
Others	2	6.25
Total Sample (32)		

Test of Hypothesis Five

A random sample of 167 art teachers who responded to the use of overhead transparencies in teaching studio-art courses was classified according to frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables V, A to E (See Appendix E).

TABLE XXXVIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF OVERHEAD TRANSPARENCIES ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	14	43.75
To Motivate	5	15.63
To Supplement	10	31.25
To Convey Basic Knowledge	16	50.00
Others	0	0
Total Sample (32)		

In order to test the null hypothesis that effectiveness (A,B,C, D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were identified in Table XXXIX.

Hypotheses Five A,B, and C. There is no relationship between the use of overhead transparencies in teaching studio-art courses

and the effectiveness in terms of (A) student performance, (B) student satisfaction, and (C) teacher performance. As indicated in Table XXXIX, these hypotheses were rejected since there were significant relationships between the use of overhead transparencies in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, and (C) teacher performance at .01 significance level.

Hypotheses Five D and E. There is no relationship between the use of overhead transparencies in teaching studio-art courses and the effectiveness in terms of (D) time consumed, and (E) class size. As noted in Table XXXIX, these hypotheses were not rejected. No relationship between the use of overhead transparencies in teaching studio-art courses and the effectiveness in terms of (D) time consumed, and (E) class size were discerned at the .01 significance level.

Hypothesis Six: Radio

Descriptive Analysis

Data in Table XXXX revealed that of the 19 art teachers who responded to the use of radio in teaching studio-art courses, 11 art teachers (57.90 percent) were from junior colleges, and eight art teachers (42.10 percent) were from senior colleges and universities.

Data in Table XXXXI revealed that eight art teachers (42.11 percent) of the 19 art teachers who responded to the use of radio in teaching studio-art courses were from institutions with student

TABLE XXXIX

SUMMARY FOR TEST OF HYPOTHESIS FIVE

	Hypothesis Five	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	14.71	1	6.635	Reject H_0.	0.28
B.	Student Satisfaction	25.04	1	6.635	Reject H_0.	0.36
C.	Teacher Performance	9.96	1	6.635	Reject H_0.	0.24
D.	Time Consumed	0.01	1	6.635	Do not reject H_0.	0.01
E.	Class Size	4.51	1	6.635	Do not reject H_0.	0.16

populations of 300-2499, eight art teachers (42.11 percent) were from institutions with student populations of 2500-14999, and three art teachers (15.78 percent) were from institutions with student populations larger than 15000.

TABLE XXXX

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF RADIO

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	0	0.00
Junior Colleges	11	57.90
Senior Colleges and Universities	8	42.10
Total Sample	19	100.00

Data in Table XXXXII revealed that four art teachers (21.05 percent) of the 19 art teachers who responded to the use of radio in teaching studio-art courses had 6-10 years of teaching experience, seven art teachers (36.84 percent) had 11-15 years of teaching experience, and eight art teachers (42.11 percent) had more than 16 years of teaching experience.

TABLE XXXXI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF RADIO SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	0	0.00
300-2499	8	42.11
2500-14999	8	42.11
15000 or more	3	15.78
Total Sample	19	100.00

TABLE XXXXII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF RADIO SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
0-5	0	0.00
6-10	4	21.05
11-15	7	36.84
16 or more	8	42.11
Total Sample	19	100.00

Data in Table XXXXIII indicated that of the 19 art teachers who used radio in teaching 70 studio-art classes, six classes (8.57 percent) out of 70 studio-art classes had 1-5 students, 17 classes (24.29 percent) had 6-12 students, 43 classes (61.43 percent) had 13-24 students, and four classes (5.71 percent) had more than 25 students.

TABLE XXXXIII

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED RADIO SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	6	8.57
6-12	17	24.29
13-24	43	61.43
25 or more	4	5.71
Total Number of Classes	70	100.00

Data in Table XXXXIV indicated that of 19 art teachers who responded to the actual usage of radio, 10 art teachers (52.63

percent) of the 19 art teachers used it in drawing courses, six art teachers (31.58 percent) used it in painting courses, four art teachers (21.05 percent) used it in design courses, four art teachers (21.05 percent) used it in printmaking courses, three art teachers (15.79 percent) used it in sculpture courses, and five art teachers (26.32 percent) used it in ceramic courses.

TABLE XXXXIV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF RADIO SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	10	52.63
Painting	6	31.58
Design (Graphic)	4	21.05
Printmaking	4	21.05
Sculpture	3	15.79
Ceramics	5	26.32
Photography	0	0.00
Others	0	0.00
Total Sample (19)		

Data in Table XXXXV revealed the purposes for which radio was used in teaching studio-art courses. Six art teachers (31.58 percent) used it to motivate, five art teachers (26.32 percent) used it to supplement, two art teachers (10.53 percent) used it to convey basic knowledge, and five art teachers (26.32 percent) used it for other purposes. Ranked according to the frequency of choice of the respondents, the categories were as follows:

1. To motivate.
2. To supplement and other purposes.
3. To convey basic knowledge.

TABLE XXXXV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF RADIO ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	0	0
To Motivate	6	31.58
To Supplement	5	26.32
To Convey Basic Knowledge	2	10.53
Others	5	26.32
Total Sample (19)		

Test of Hypothesis Six

A random sample of 167 art teachers who responded to the use of radio in teaching studio-art courses was classified according to frequency of usage and perceived effectiveness. The results were put into five 5x5 Contingency Tables VI, A to E (See Appendix E).

In order to test the null hypothesis that effectiveness (A,B,C, D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were listed in Table XXXXVI.

Hypotheses Six A,B,C,D, and E. There is no relationship between the use of radio in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, (D) time consumed, and (E) class size. As noted in Table XXXXVI, these hypotheses were rejected since there were significant relationships between the use of radio in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, (D) time consumed, and (E) class size at .01 significance level.

TABLE XXXXVI

SUMMARY FOR TEST OF HYPOTHESIS SIX

	Hypothesis Six	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	96.46	1	6.635	Reject H_0.	0.61
B.	Student Satisfaction	85.62	1	6.635	Reject H_0.	0.58
C.	Teacher Performance	64.79	1	6.635	Reject H_0.	0.53
D.	Time Consumed	19.58	1	6.635	Reject H_0.	0.32
E.	Class Size	10.79	1	6.635	Reject H_0.	0.25

Hypothesis Seven: Tape Recordings

Descriptive Analysis

Data in Table XXXXVII revealed that of 48 art teachers who responded to the use of tape recording in teaching studio-art courses, six art teachers (12.50 percent) were from art schools, 19 art teachers (39.58 percent) were from junior colleges, and 23 art teachers (47.92 percent) were from senior colleges and universities.

TABLE XXXXVII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TAPE RECORDING

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	6	12.50
Junior Colleges	19	39.58
Senior Colleges and Universities	23	47.92
Total Sample	48	100.00

Data in Table XXXXVIII revealed that four art teachers (8.33

percent) of the 48 art teachers who responded to the actual usage of tape recording in teaching studio-art courses were from institutions with student populations under 300, 20 art teachers (41.67 percent) were from institutions with student populations of 2500-14999, and five art teachers (10.42 percent) were from institutions with student populations larger than 15000.

TABLE XXXXVIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TAPE RECORDING SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	4	8.33
300-2499	20	41.67
2500-14999	19	39.58
15000 or more	5	10.42
Total Sample	48	100.00

Data in Table XXXXIX revealed that 15 art teachers (31.25 percent) of 48 art teachers who responded to the actual usage of tape

recording in teaching studio-art courses had 6-10 years of teaching experience, 11 art teachers (22.92 percent) had 10-15 years of teaching experience, and 22 art teachers (48.83 percent) had more than 16 years of teaching experience.

TABLE XXXXIX

NUMBER AND PERCENTAGES OF STUDIO-ART COURSES WHO RESPONDED TO THE USE OF TAPE RECORDING SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teacher	Percentage of Total Sample Within Category
0-5	0	0.00
6-10	15	31.25
11-15	11	22.92
16 or more	22	48.83
Total Sample	48	100.00

Data in Table L indicated that of the 48 art teachers who used tape recording in teaching 155 sutdio-art classes, 13 classes (8.39 percent) of the 155 studio-art classes had 1-5 students, 46 classes (26.67 percent) had 6-12 students, 83 classes (53.55 percent) had

13-24 students, and 13 classes (8.39 percent) had more than 25 students.

TABLE L

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED TAPE RECORDING SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	13	8.39
6-12	46	29.67
13-24	83	53.55
25 or more	13	8.39
Total Number of Classes	155	100.00

Data in Table LI indicated that of the 48 art teachers who responded to the actual usage of tape recording, 19 art teachers (39.58 percent) used it in drawing courses, 13 art teachers (27.09 percent) used it in painting courses, 17 art teachers (35.42 percent) used it in design courses, four art teachers (8.33 percent) used it in printmaking courses, six art teachers (12.50 percent) used it in

sculpture courses, seven art teachers (14.58 percent) used it in ceramic courses, and six art teachers (12.50 percent) used it in photography courses.

TABLE LI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TAPE RECORDING SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	19	39.58
Painting	13	27.08
Design (Graphic	17	35.42
Printmaking	4	8.33
Sculpture	6	12.50
Ceramics	7	14.58
Photography	6	12.50
Others	0	0.00
Total Sample (48)		

Data in Table LII indicated the purposes of which tape recording

was used in teaching studio-art courses. Three art teachers (6.25 percent) used it to demonstrate, 22 art teachers (45.83 percent) used it to motivate, 20 art teachers (41.67 percent) used it to supplement, 16 art teachers (33.33 percent) used it to convey basic knowledge, and six art teachers (12.50 percent) used it for other purposes. Ranked according to the frequency of choice of the respondents, the categories were identified as follows:

1. To motivate.
2. To supplement.
3. To convey basic knowledge.
4. To demonstrate.

Test of Hypotehsis Seven

A random sample of 167 art teachers who responded to the use of tape recording in teaching studio-art courses was classified according to frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables VII, A to E (See Appendix E).

In order to test the null hypothesis that effectiveness (A,B,C, D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were listed in Table LIII.

TABLE LII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF TAPE RECORDING ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	3	6.25
To Motivate	22	45.83
To Supplement	20	41.67
To Convey Basic Knowledge	16	33.33
Others	6	12.50
Total Sample (48)		

Hypotheses Seven A,B,C, and D. There is no relationship between the use of tape recording in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed. As indicated in Table LIII, these hypotheses were rejected since there were significant relationships between the use of tape recording in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed at .01 significance level.

TABLE LIII

SUMMARY FOR TEST OF HYPOTHESIS SEVEN

	Hypothesis Seven	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	43.96	1	6.635	Reject H_0.	0.46
B.	Student Satisfaction	30.70	1	6.635	Reject H_0.	0.39
C.	Teacher Performance	22.31	1	6.635	Reject H_0.	0.34
D.	Time Consumed	20.44	1	6.635	Reject H_0.	0.33
E.	Class Size	2.48	1	6.635	Do not reject H_0.	0.12

Hypothesis Seven E. There is no relationship between the use of tape recording in teaching studio-art courses and the effectiveness in terms of (E) class size. As noted in Table LIII, this hypothesis was not rejected. No relationship between the use of tape recording in teaching studio-art courses and the effectiveness in terms of class size was discerned at the .01 significance level.

Hypothesis Eight: Multiple Media

Descriptive Analysis

Data in Table LIV indicated that of the 39 studio-art teachers who responded to the actual usage of multiple media in teaching studio-art courses, two art teachers (5.13 percent) were from art schools, 17 art teachers (43.59 percent) were from junior colleges, and 20 art teachers (51.28 percent) were from senior colleges and universities.

Data in Table LV revealed that one art teacher (2.56 percent) of 39 art teachers who responded to the actual usage of multiple media was from institutions with student population under 300, 18 art teachers (46.15 percent) were from institutions with student populations of 300-2499, 14 art teachers (35.90 percent) were from institutions with student populations of 2500-14999, and six art teachers (15.39 percent) were from institutions with student populations larger than 15000.

Data in Table LVI indicated that one art teacher (2.56 percent) of the 39 teachers who responded to using multiple media in teaching studio-art courses had less than five years of teaching experience, 11

art teachers (28.21 percent) had 6-10 years of teaching experience, nine art teachers (23.08 percent) had 11-15 years of teaching experience, and 18 art teachers (46.15 percent) had more than 16 years of teaching experience.

TABLE LIV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF MULTIPLE MEDIA

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	2	5.13
Junior Colleges	17	43.59
Senior Colleges and Universities	20	51.28
Total Sample	39	100.00

Data in Table LVII revealed that the 39 art teachers used multiple media in teaching 122 studio-art classes, and of these, 10 classes (8.20 percent) had 105 students, 38 classes (31.15 percent) had 6-12 students, 60 classes (49.18 percent) had 13-24 students, and 14 classes (11.47 percent) had more than 25 students.

TABLE LV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF MULTIPLE MEDIA SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	1	2.56
300-2499	18	46.15
2500-14999	14	35.90
15000 or more	6	15.39
Total Sample	39	100.00

TABLE LVI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF MULTIPLE MEDIA SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teacher	Percentage of Total Sample Within Category
0-5	1	2.56
6-10	11	28.21
11-15	9	23.08
16 or more	18	46.15
Total Sample	39	100.00

TABLE LVII

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED MULTIPLE MEDIA SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	10	8.20
6-12	38	31.15
13-24	60	49.18
25 or more	14	11.47
Total Number of Classes	122	100.00

Data in Table LVIII indicated that, of the 39 art teachers who responded to the use of multiple media, 16 art teachers (41.03 percent) of the 39 art teachers used them in drawing courses, 12 art teachers (30.77 percent) used them in painting courses, 15 art teachers (38.46 percent) used them in design courses, five art teachers (12.82 percent) used them in printmaking courses, eight art teachers (20.51 percent) used them in sculpture courses, five art teachers (12.82 percent) used them in ceramic courses, and seven art teachers (17.95 percent) used them in photography courses.

Data in Table LIX revealed the purposes for which multiple media was used in teaching studio-art courses. Fourteen art teachers

(35.90 percent) used them to demonstrate, 28 art teachers (71.79 percent) used them to motivate, 18 art teachers (46.15 percent) used them to supplement, and 17 art teachers (43.59 percent) used them to convey basic knowledge. Ranked according to the frequency of choice of the respondents, the categories were as follows:

1. To motivate.
2. To supplement.
3. To convey basic knowledge.
4. To demonstrate.

Test of Hypothesis Eight

A random sample of 167 art teachers who responded to the use of multiple media in teaching studio-art courses was classified according to frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables VIII, A to E (See Appendix E).

In order to test the null hypothesis that effectiveness (A,B,C, D,E) was independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 significance level, the decision, and Pearson's Contingency Coefficient were listed in Table LX.

Hypotheses Eight A,B,C, and D. There is no relationship between the use of multiple media in teaching studio-art courses and the

effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed. As noted in Table LX, these hypotheses were rejected since there were significant relationships between the use of multiple media in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed at the .01 significance level.

TABLE LVIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF MULTIPLE MEDIA SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	16	41.03
Painting	12	30.77
Design (Graphic)	15	38.46
Printmaking	5	12.82
Sculpture	8	20.51
Ceramics	5	12.82
Photography	7	17.95
Others	0	0.00
Total Sample (39)		

TABLE LIX

NUMBER AND PERCENTAGES OF STUDIO-ART COURSES WHO RESPONDED TO THE USE OF MULTIPLE MEDIA ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	14	35.90
To Motivate	28	71.79
To Supplement	18	46.15
To Convey Basic Knowledge	17	43.59
Others	0	0.00
Total Sample (39)		

Hypothesis Eight E. There is no relationship between the use of multiple media in teaching studio-art courses and the effectiveness in terms of (E) class size. As indicated in Table LX, this hypothesis was not rejected. No relationship between the use of multiple media in teaching studio-art courses and the effectiveness in terms of class size was discerned at the .01 significance level.

Hypothesis Nine: Computer-Assisted Instruction

Descriptive Analysis

Data from Table LXI indicated that of the nine studio-art

TABLE LX

SUMMARY FOR TEST OF HYPOTHESIS EIGHT

	Hypothesis Eight	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	31.59	1	6.635	Reject H_0.	0.40
B.	Student Satisfaction	37.98	1	6.635	Reject H_0.	0.43
C.	Teacher Performance	28.55	1	6.635	Reject H_0.	0.38
D.	Time Consumed	18.68	1	6.635	Reject H_0.	0.32
E.	Class Size	3.09	1	6.635	Do not reject H_0.	0.13

teachers who responded to the actual usage of computer-assisted instruction in teaching studio-art courses, five art teachers (55.56 percent) were from junior colleges and four art teachers (44.44 percent) were from senior colleges and universities.

TABLE LXI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF COMPUTER-ASSISTED INSTRUCTION

Type of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Art Schools	0	0.00
Junior Colleges	5	55.56
Senior Colleges and Universities	4	44.44
Total Sample	9	100.00

Data in Table LXII indicated that three art teachers (33.33 percent) of the nine art teachers who responded to the actual usage of computer-assisted instruction were from institutions with student populations of 300-2499, three art teachers (33.33 percent) were from

institutions with student populations of 2500-14999, and three art teachers (33.33 percent) were from institutions with student populations larger than 15000.

TABLE LXII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF COMPUTER-ASSISTED INSTRUCTION SCALE BY THE SIZE OF INSTITUTION

Size of Institution	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
under 300	0	0.00
300-2499	3	33.33
2500-14999	3	33.33
15000 or more	3	33.33
Total Sample	9	100.00

Data in Table LXIII revealed that four art teachers (44.44 percent) of the nine art teachers who responded to the use of computer-assisted instruction had 6-10 years of teaching experience, one art teacher (11.12 percent) had 11-15 years of teaching experience, and

four art teachers (44.44 percent) had more than 16 years of teaching experience.

TABLE LXIII

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF COMPUTER-ASSISTED INSTRUCTION SCALE BY YEARS OF TEACHING EXPERIENCE

Years of Teaching Experience	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
0-5	0	0.00
6-10	4	44.44
11-15	1	11.12
16 or more	4	44.44
Total Sample	9	100.00

Data in Table LXIV indicated that the nine art teachers used computer-assisted instruction in teaching 28 studio-art classes, and of these, one class (3.57 percent) had 1-5 students, nine classes (32.14 percent) had 6-12 students, 16 classes (57.14 percent) had 13-24 students, and two classes (7.14 percent) had more than 25 students.

TABLE LXIV

NUMBER AND PERCENTAGES OF STUDIO-ART CLASSES IN WHICH ART TEACHERS USED COMPUTER-ASSISTED INSTRUCTION SCALE BY CLASS SIZE

Number of Students	Number of Studio-Art Classes	Percentage of Total Number of Classes Within Category
1-5	1	3.57
6-12	9	32.14
13-24	16	57.14
25 or more	2	7.14
Total Number of Classes	28	100.00

Data in Table LXV revealed that of the nine art teachers who responded to the use of computer-assisted instruction, two art teachers (22.22 percent) used it in drawing courses, seven art teachers (77.78 percent) used it in design courses, two art teachers (22.22 percent) used it in ceramics courses, and one art teacher used it in photography courses.

Data in Table LXVI revealed the purposes for which computer-assisted instruction was used in teaching studio-art courses. Six art teachers (66.67 percent) used computer-assisted instruction to demonstrate, one art teacher (11.11 percent) used it to motivate, five art teachers (55.56 percent) used it to supplement, and five art

teachers (55.56 percent) used it to convey basic knowledge. Ranked according to the frequency of choice of the respondents, the categories were as follows:

1. To demonstrate.
2. To supplement and convey basic knowledge.
3. To motivate.

TABLE LXV

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF COMPUTER-ASSISTED INSTRUCTION SCALE BY STUDIO-ART COURSES

Subjects	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
Drawing	2	22.22
Painting	0	0.00
Design (Graphic)	7	77.78
Printmaking	0	0.00
Sculpture	0	0.00
Ceramics	2	22.22
Photography	1	11.11
Others	0	0.00
Total Sample (9)		

TABLE LXVI

NUMBER AND PERCENTAGES OF STUDIO-ART TEACHERS WHO RESPONDED TO THE USE OF COMPUTER-ASSISTED INSTRUCTION ACCORDING TO PURPOSES

Purposes	Number of Studio-Art Teachers	Percentage of Total Sample Within Category
To Demonstrate	6	66.67
To Motivate	1	11.11
To Supplement	5	55.56
To Convey Basic Knowledge	5	55.56
Others	0	0.00
Total Sample (9)		

Test of Hypothesis Nine

A random sample of 167 art teachers who responded to the use of computer-assisted instruction in teaching studio-art courses was classified according to frequency of usage and also the perceived effectiveness. The results were put into five 5x5 Contingency Tables IX, A to E (See Appendix E).

In order to test the null hypothesis that the effectiveness (A,B, C,D,E) is independent of the use of such instructional media, the Chi-Square Test for Independence was selected. The 5x5 contingency

tables were collapsed into 2x2 contingency tables. The T-statistic and Pearson's Contingency Coefficient were calculated from the 2x2 contingency tables. The T-statistic and its degree of freedom, the Chi-Square value at the .01 percent significance level, the decision, and Pearson's Contingency Coefficient were identified in Table LXVII.

Hypothesis Nine A,B,C, and D. There is no relationship between the use of computer-assisted instruction in teaching studio-art courses and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed. As indicated in Table LXVII, these hypotheses were rejected since there were significant relationships between the use of computer-assisted instruction and the effectiveness in terms of (A) student performance, (B) student satisfaction, (C) teacher performance, and (D) time consumed at the .01 significance level.

Hypothesis Nine E. There is no relationship between the use of computer-assisted instruction in teaching studio-art courses and the effectiveness in terms of (E) class size. As noted in Table LXVII, this hypothesis was not rejected. No relationship between the use of computer-assisted instruction in teaching studio-art courses and the effectiveness in terms of class size was discerned at the .01 significance level.

Summary

The purpose of this research effort was to study the relationships between use and effectiveness, extent of use, and purpose of using instructional media as perceived by instructors in teaching studio-art

TABLE LXVII

SUMMARY FOR TEST OF HYPOTHESIS NINE

	Hypothesis Nine	T-Statistic	Degrees of Freedom	1% Level Chi-Square Value	Decision	Pearson's Contingency Coefficient
A.	Student Performance	147.96	1	6.635	Reject H_0.	0.69
B.	Student Satisfaction	109.63	1	6.635	Reject H_0.	0.63
C.	Teacher Performance	128.67	1	6.635	Reject H_0.	0.66
D.	Time Consumed	36.40	1	6.635	Reject H_0.	0.42
E.	Class Size	3.93	1	6.635	Do not reject H_0.	0.15

courses. Instructional media considered in the study were (1) programmed instruction, (2) television, video tape, and motion pictures, (3) slides, (4) filmstrips, (5) overhead transparencies, (6) radio, (7) tape recording, (8) multiple media, and (9) computer-assisted instruction. The perceived effectiveness of the studio-art teachers was measured in terms of (1) student performance, (2) student satisfaction, (3) teacher performance, (4) time consumed, and (5) class size. The researcher developed a questionnaire and had it verified by authorities in art education. The sample consisted of 167 studio-art teachers, who taught during the Fall of 1983, and were randomly selected from art schools, junior colleges, and senior colleges and universities throughout the country. Art teachers were asked to respond to the questionnaire which was designed to get information regarding the use of instructional media and teaching effectiveness. A 2x2 Chi-Square Contingency Test for Independence using the frequency of instructional media usage and the perceived effectiveness was used to analyze data and test the hypotheses. Descriptive statistics were used to describe the extent and purposes of the use of instructional media.

An examination of the data presented in this chapter indicated the following: (1) Instructional media complementing the traditional method of teaching studio-art courses has been a widely used technique in all types of institutions--large and small--art schools, junior colleges, and senior colleges (See Table LXIX); (2) instructional media were used more often by art teachers who had more than 11 years of teaching experience (See Table LXIX); (3) instructional media were

used more often in teaching large classes with more than 13 students than in teaching small classes (See Table LXIX); (4) instructional media were used in all areas of studio-art, however, most often in the studio-art areas of drawing, painting, design, ceramics, and sculpture (See Table LXIX); (5) different types of instructional media may reinforce different purposes of teaching studio-art courses (See Table LXIX); (6) effectiveness in the areas of student performance, student satisfaction, teacher performance was significantly related to the use of all instructional media except slides (See Table LXVIII); (7) effectiveness in the areas of time consumed and class size was significantly related to the use of filmstrips, radio, tape recordings, multiple media, and computer-assisted instruction (See Table LXVIII); (8) effectiveness in the area of class size was significantly related to programmed instruction, television, video tape, motion pictures, and radio (See Table LXVIII). Tables LXVIII and LXIX presented a summary of research findings.

TABLE LXVIII

EVIDENCE OF RELATIONSHIPS BETWEEN THE EFFECTIVENESS AND THE USE OF INSTRUCTIONAL MEDIA

Instructional Media	Area of Effectiveness				
	Student Performance	Student Satisfaction	Teacher Performance	Time Consumed	Class Size
1. Programmed Instruction	X	X	X		X
2. Television, Video Tape, and Motion Pictures	X	X	X		X
3. Slides					
4. Filmstrips	X	X	X	X	
5. Overhead Transparencies	X	X	X		
6. Radio	X	X	X	X	X
7. Tape Recording	X	X	X	X	
8. Multiple Media	X	X	X	X	
9. Computer-Assisted Instruction	X	X	X	X	

X = Significant Relationship

TABLE LXIX

RANKS OF EXTENTS AND PURPOSES OF THE USE OF INSTRUCTIONAL MEDIA IN TEACHING STUDIO-ART COURSES

Instructional Media	Type of Institution	Population	Art Teacher	Class Size	Studio-Art Area	Purpose
1. Programmed Instruction	JC	Small	Experience	Large	Drawing	Convey Basic Knowledge
	SC	Large	Recent	Small	Design	Demonstrate
	AS				Painting	Motivate
						Supplement
2. Television, Video Tape, and Motion Pictures	JC	Large	Experience	Large	Drawing	Demonstrate
	SC	Small	Recent	Small	Design	Supplement
	AS				Painting	Motivate
						Convey Basic Knowledge
3. Slides	SC	Large	Experience	Large	Drawing	Motivate
	JC	Small	Recent	Small	Painting	Convey Basic Knowledge
					Design	Supplement
						Demonstrate
4. Filmstrips	JC	Small	Experience	Large	Drawing	Convey Basic Knowledge
	SC	Large	Recent	Small	Design	Supplement
	AS					Demonstrate
						Motivate

TABLE LXIX (Continued)

Instructional Media	Type of Institution	Population	Art Teacher	Class Size	Studio-Art Area	Purpose
5. Overhead Transparencies	JC	Large	Experience	Large	Drawing	Convey Basic Knowledge
	SC	Small	Recent	Small	Design	Demonstrate
	AS				Ceramics	Supplement
						Motivate
6. Radio	JC	Large	Experience	Large	Drawing	Motivate
	SC	Small	Recent	Small	Painting	Supplement
	AS				Ceramics	Convey Basic Knowledge
7. Tape Recording	JC	Large	Experience	Large	Drawing	Motivate
	SC	Small	Recent	Small	Design	Supplement
	AS				Painting	Convey Basic Knowledge
8. Multiple Media	JC	Large	Experience	Large	Drawing	Motivate
	SC	Small	Recent	Small	Painting	Supplement
	AS				Design	Convey Basic Knowledge
						Demonstrate

TABLE LXIX (Continued)

Instructional Media	Type of Instruction	Population	Art Teacher	Class Size	Studio-Art Area	Purpose
9. Computer-Assisted	JC SC	Large Small	Experience Recent	Large Small	Design Drawing Ceramics	Demonstrate Supplement Convey Basic Knowledge Motivate

Type of Institution

AS = Art School
JC = Junior Colleges
SC = Senior Colleges and Universities

Population

Small = under 300 to 2499
Large = 2500 to 15000

Art Teacher

Recent = 0-10 years
Experience = 11 or more

Class Size

Small = 1 to 12 students
Large = 13 or more

CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The use of instructional media to complement the traditional lecture has become a common technique used in all disciplines; studio-art, although not a discipline, was no exception. Instructional media offered hope but no guarantee of improvement in the quality and effectiveness of teaching. This research was undertaken to determine whether the use of media in teaching studio-art courses was a factor which might influence instructional effectiveness. This study also investigated the extent of use of instructional media and determined the purposes of studio-art teachers using instructional media in teaching studio-art courses. Allen (1971) and Chu and Schramm (1967) indicated that instructional media were as effective as traditional methods of instruction. Homeyer (1970) reported a saving in student learning time. Dubin and Hedley (1969), Attiyeh, and Bach and Lumsden (1969) indicated that students and teachers had favorable attitudes toward instructional media. The literature did not offer evidence concerning the effectiveness of the use of instructional media in teaching studio-art courses and had not indicated the extent and purposes of studio-art teachers using instructional media. In order to provide information not currently found in the research literature, research hypotheses were formulated concerning the relationships between the use of instructional

media and five specific areas of effectiveness. Questions concerning the extent and purposes of instructional media in teaching studio-art courses were included in the study.

Data were obtained from 167 studio-art teachers in art schools, junior colleges, senior colleges and univerities throughout the country who were teaching during the Fall Semester of 1983. The teachers were asked to respond to the questionnaire which was designed to acquire facts regarding the use of instructional media and teaching effectiveness. The 2x2 Chi-Square Contingency Test for Independence using the frequency of instructional media usage and perceived effectiveness was used to analyze data and test the hypotheses. The percentage method was used to describe the extent and purposes of the use of instructional media.

Findings

Within the limitations noted for the present study, the following findings were indicated based on an analysis of previously identified hypotheses.

Hypothesis One

A. Faculty perceived effectiveness as measured in terms of student performance was significantly related to the frequency of using programmed instruction in teaching studio-art courses (See Table XI).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to the frequency of

using programmed instruction in teaching studio-art courses (See Table XI).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using programmed instruction in teaching studio-art courses (See Table XI).

D. Faculty perceived effectiveness as measured in terms of time consumed was not significantly related to frequency of using programmed instruction in teaching studio-art courses (See Table XI).

E. Faculty perceived effectiveness as measured in terms of class size was significantly related to frequency of using programmed instruction in teaching studio-art courses (See Table XI).

When the extent and the purposes of the use of programmed instruction were considered together it was noted that programmed instruction was used mainly in both large and small size junior and senior colleges with the population between 300 to 14999 (See Tables V, VI). The more experienced studio-art teachers (more than 11 years of teaching experience) were the major users of programmed instruction (See Table VII).

Programmed Instruction was found to be used more frequently in teaching large size classes (with more than 13 students) in areas of drawing, design, and painting (See Tables VIII, IX). The ranks of purposes to which the studio-art teachers used programmed instruction were (1) to convey basic knowledge, (2) to demonstrate, (3) to motivate, and (4) to supplement (See Table X).

Hypothesis Two

A. Faculty perceived effectiveness as measured in terms of

student performance was significantly related to frequency of using television, video tape, and motion pictures in teaching studio-art courses (See Table XVIII).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using television, video tape, and motion pictures in teaching studio-art courses (See Table XVIII).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using television, video tape, and motion pictures in teaching studio-art courses (See Table XVIII).

D. Faculty perceived effectiveness as measured in terms of time consumed was not related to frequency of using television, video tape, and motion pictures in teaching studio-art courses (See Table XVIII).

E. Faculty perceived effectiveness as measured in terms of class size was significantly related to frequency of using television, video tape, and motion pictures in teaching studio-art courses (See Table XVIII).

Results of the descriptive analysis further indicated that television, video tape, and motion pictures were used more frequently in large size (with populations more than 2500) senior colleges and junior colleges than in smaller institutions (See Tables XII and XIII). The major group of studio-art teachers who used television, video tape, and motion pictures was art teachers with more teaching experience (See Table XIV).

Television, video tape, and motion pictures were found to be used frequently in large size classes (with more than 13 students) in the areas of drawing, design, painting, and sculpture (See Table XVI). The ranks of purposes to which the studio-art teachers wished to accomplish were (1) to supplement, (2) to motivate, (3) to convey basic knowledge, and (4) to demonstrate (See Table XVII).

Hypothesis Three

A. Faculty perceived effectiveness as measured in terms of student perfomrance was not significantly related to frequency of usage of slides in teaching studio-art courses (See Table XXV).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was not related to frequency of usage of slides in teaching studio-art courses (See Table XXV).

C. Faculty perceived effectiveness as measured in terms of teacher performance was not related to frequency of usage of slides in teaching studio-art courses (See Table XXV).

D. Faculty perceived effectiveness as measured in terms of time consumed was not related to frequency of using slides in teaching studio-art courses (See Table XXV).

E. Faculty perceived effectiveness as measured in terms of class size was not related to frequency of using slides in teaching studio-art courses (See Table XXV).

Hypothesis Four

A. Faculty perceived effectiveness as measured in terms of

student performance was significantly related to frequency of using filmstrips in teaching studio-art courses (See Table XXXII).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using filmstrips in teaching studio-art courses (See Table XXXII).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using filmstrips in teaching studio-art courses (See Table XXXII).

D. Faculty perceived effectiveness as measured in terms of time consumed was significantly related to frequency of using filmstrips in teaching studio-art courses (See Table XXXII).

E. Faculty perceived effectiveness as measured in terms of class size was not related to frequency of using filmstrips in teaching studio-art courses (See Table XXXII).

According to the descriptive analysis, filmstrips were found to be used extensively in small size junior and senior colleges with student populations between under 300 to 2499 (See Tables XXVI and XXVII). The more experienced art teachers used filmstrips in teaching large size classes (with more than 13 students) in the areas of drawing, design, and painting (See Tables XXVIII, XXIX, and XXX). The ranks of purposes to which art teachers used filmstrips were (1) to convey basic knowledge, (2) to supplement, (3) to demonstrate, and (4) to motivate (See Table XXXI).

Hypothesis Five

A. Faculty perceived effectiveness as measured in terms of

student performance was significantly related to frequency of using overhead transparencies in teaching studio-art courses (See Table XXXIX).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using overhead transparencies in teaching studio-art courses (See Table XXXIX).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using overhead transparencies in teaching studio-art courses (See Table XXXIX).

D. Faculty perceived effectiveness as measured in terms of time consumed was not related to frequency of using overhead transparencies in teaching studio-art courses (See Table XXXIX).

E. Faculty perceived effectiveness as measured in terms of class size was not related to frequency of using overhead transparencies in teaching studio-art courses (See Table XXXIX).

Results of descriptive analysis indicate that overhead transparencies were used more frequently in large size junior and senior colleges with student populations more than 2500 (See Tables XXXIII and XXXIV). The major group of studio-art teachers who used overhead transparencies was the more experienced teachers (See Table XXXV).

Overhead transparencies were used more often in large classes in the areas of drawing, design, and ceramics (See Tables XXVI and XXXVII). The ranks of purposes to which art teachers used overhead

transparencies were (1) to convey basic knowledge, (2) to demonstrate, (3) to supplement, and (4) to motivate (See Table XXXVIII).

Hypothesis Six

A. Faculty perceived effectiveness as measured in terms of student performance was significantly related to frequency of using radio in teaching studio-art courses (See Table XXXXVI).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using radio in teaching studio-art courses (See Table XXXXVI).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using radio in teaching studio-art courses (See Table XXXXVI).

D. Faculty perceived effectiveness as measured in terms of time consumed was significantly related to frequency of using radio in teaching studio-art courses (See Table XXXXVI).

E. Faculty perceived effectiveness as measured in terms of class size was significantly related to frequency of using radio in teaching studio-art courses (See Table XXXXVI).

According to the descriptive analysis, radio was found to be used often in large size junior and senior colleges with a student population more than 2500 (See Tables XXXX and XXXXI). The major group of art teachers who used radio was more experienced teachers (See Table XXXXII).

Radio was used frequently in large size classes with having more than 13 students and in the areas of drawing, painting, and ceramics

(See Tables XXXXIII and XXXXIV). The rankings of purposes for which art teachers used radio were (1) to motivate, (2) to supplement, and (3) to convey basic knowledge (See Table XXXV).

Hypothesis Seven

A. Faculty perceived effectiveness as measured in terms of student performance was significantly related to frequency of using tape recording in teaching studio-art courses (See Table LIII).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using tape recording in teaching studio-art courses (See Table LIII).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using tape recording in teaching studio-art courses (See Table LIII).

D. Faculty perceived effectiveness as measured in terms of time consumed was significantly related to frequency of using tape recording in teaching studio-art courses (See Table LIII).

E. Faculty perceived effectiveness as measured in terms of class size was not related to frequency of using tape recording in teaching studio-art courses (See Table LIII).

Results of descriptive analysis indicated that tape recording was used more frequently in both large and small size senior and junior colleges with student population from under 300 to more than 15000 (See Tables XXXXVII and XXXXVIII). The more experienced art teachers used tape recording in teaching large classes with more than 13 students and in the areas of drawing, design, and painting (See Tables XXXXIX

L, and LI). The ranks of purposes to which art teachers used tape recordings were (1) to motivate, (2) to supplement, (3) to convey basic knowledge, and (4) to demonstrate (Table LII).

Hypothesis Eight

A. Faculty perceived effectiveness as measured in terms of student performance was significantly related to frequency of using multiple media in teaching studio-art courses (See Table LX).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using multiple media in teaching studio-art courses (See Table LX).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency in using multiple media in teaching studio-art courses (See Table LX).

D. Faculty perceived effectiveness as measured in terms of time consumed was significantly related to frequency of using multiple media in teaching studio-art courses (See Table LX).

E. Faculty perceived effectiveness as measured in terms of class size was not related to frequency of using multiple media in teaching studio-art courses (See Table LX).

Results of descriptive analysis indicated that multiple media were found to be used frequently in both large and small size senior and junior colleges (See Tables LIV and LV). The more experienced art teachers used multiple media in teaching large size classes in the areas of drawing, painting, and design (See Tables LVI, LVII, and LVIII). The ranks of purposes to which art teachers used multiple

media were (1) to motivate, (2) to supplement, (3) to convey basic knowledge, and (4) to demonstrate (See Table LIX).

Hypothesis Nine

A. Faculty perceived effectiveness as measured in terms of student performance was significantly related to frequency of using computer-assisted instruction in teaching studio-art courses (See Table LXVII).

B. Faculty perceived effectiveness as measured in terms of student satisfaction was significantly related to frequency of using computer-assisted instruction in teaching studio-art courses (See Table LXVII).

C. Faculty perceived effectiveness as measured in terms of teacher performance was significantly related to frequency of using computer-assisted instruction in teaching studio-art courses (See Table LXVII).

D. Faculty perceived effectiveness as measured in terms of time consumed was significantly related to frequency of using computer-assisted instruction in teaching studio-art courses (See Table LXVII).

E. Faculty perceived effectiveness as measured in terms of class size was significantly related to frequency of using computer-assisted instruction in teaching studio-art courses (See Table LXVII).

From descriptive analysis, results indicated that computer-assisted instruction was used frequently in large size junior and senior colleges (See Tables LXI and LXII). The experienced art teachers used computer-assisted instruction in teaching large size

classes with more than 13 students in the ares of design, drawing, and ceramics (See Tables LXIII, LXIV, and LXV). The rankings of purposes for which art teachers used computer-assisted instruction were (1) to demonstrate, (2) to supplement and convey basic knowledge, and (3) to motivate (See Table LXVI).

Conclusions

The following conclusions seemed appropriate from the findings of this study:

1. At the time that this study was conducted, budgets for higher education, especially for art departments, were constricted; however, use of instructional media complementing traditional methods of instruction was a widely used technique in all types of institutions--large and small--art schools, junior colleges, and senior colleges, and in all areas of studio-art. This suggested that use of instructional media in teaching studio-art courses was perceived as practical and financial. Teaching studio-art courses required demonstration. A demonstration in studio-art can only be shown to a few students at a time, so if there were many students, the art teachers had to demonstrate the same operation many times, which created organizational problems and waiting lists for students. In this instance, instructional media enabled art teachers to produce the desired educational efforts at relatively low costs, and thus these media were demonstrably cost-effective.

2. Among teachers who have used instructional media in their studio-art courses, the great majority were more experienced with

11 years of more teaching background. This suggested that teaching experience influenced the use of instructional media in studio-art courses.

3. The findings indicated that instructional media were found to be used most often in large classes with more than 13 students, and that student performance, student satisfaction, and teacher performance--as perceived by art teachers--were favorable. The account of these large classes and favorable attitudes tended to suggest that learning with the use of instructional media was not impaired by large classes.

4. The findings appeared to indicate that different types of instructional media may be used to achieve different purposes in teaching studio-art courses. This study reinforced the findings of Nesbit (1981) and Kemp (1980) that different types of instructional media served and promoted different purposes.

5. Effectiveness in the quality areas of student performance, student satisfaction, and teacher performance was significantly related to the use of all instructional media except slides. This suggested that most instructional media had potential for improving the quality of studio-art courses.

6. Regarding effectiveness in two quantity areas, (a) time consumed was significantly related to the use of filmstrips, radio, tape recording, multiple media, and computer-assisted instruction; and (b) class size was significantly related to programmed instruction, television, video tape, motion pictures, and radio. This suggested that those instructional media could be of substantial value in

improving productivity by reducing the cost of the studio-art teaching and learning process.

Recommendations

The following recommendations were made based on the findings of this study:

1. It was clear from the conclusions of this study that large classes with instructional media could be used to solve part of the economic problem confronting art departments. Administrators and teachers alike seemed to understand the economic benefit involved in teaching large classes which reduced cost per student.

2. The potential of instructional media in reducing system costs through productivity improvement should be studied systematically. We have seen this type of research primarily in terms of American education, but the implications are perhaps even more relevant for developing countries where traditional instruction demands a large and growing percentage of scarce national resources.

3. It may be concluded that an establishment of Fine Art Centers for Instructional Media on a state level or on a nation-wide and/or international level would greatly benefit studio-art teaching and learning processes. These centers should assist art departments in colleges and universities in obtaining materials and information. They should be devoted to research in Fine Arts teaching and learning processes and developing instructional media with high quality and variety in the specific subject matters to cover the student needs.

4. Department heads should make current art teachers better

informed with a list of instructional media that have been made and are available in art. Current art teachers need to be well aware of what materials currently exist.

5. Studio-art teachers should be encouraged by administrators to pursue research and development in instructional media. Teachers should be encouraged to develop their own instructional media according to need of their students with the cooperation of media centers in their institutions.

6. Evident relationships did not point to the use of instructional media as the cause of effectiveness. Evidence of causality with regard to this relationship needs to be verified. Experimental studies would provide results more useful and generalizable than reliance on attitude preferences and testimonials.

7. Further research is recommended regarding an assessment of the use of instructional media in teaching studio-art courses with reference to time of demonstration and cost per student.

8. Additional research emphases include use of students in survey process and use of picture and/or prints in instructional media listings.

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APPENDIX A

THE QUESTIONNAIRE

Directions: Check the appropriate response for each of the following questions.

1. How would your type of institution be best described?

___ 1. Professional Art School

___ 2. Community College

___ 3. Senior College or University

___ 4. Other _____ (Please Specify)

2. What is the size of your institution? (Full-Time Equivalent)

___ 1. under 300

___ 2. 300 - 2,499

___ 3. 2,500 - 14,999

___ 4. 15,000 or more

3. What are the number of years of your teaching experience?

___ 1. 0 - 5

___ 2. 6 - 10

___ 3. 11 - 15

___ 4. 16 or more

4. How many students are enrolled in each of the studio-art classes you are currently teaching?

	Number of Students			
	1-15	16-25	26-35	36 or more
Class 1				
Class 2				
Class 3				
Class 4				
Class 5				

5. On the following scales indicate your approximate frequency of usage of identified instructional materials and equipment:

	Never	Once or Twice a Semester (Quarter)	Once or Twice a Month	Once or Twice a Week	Almost Every Class Session
1. Programmed Instruction					
2. Television, Video Tape, and Motion Pictures					
3. Slides					
4. Filmstrips					
5. Overhead Transparencies					
6. Radio					
7. Tape Recording					
8. Multiple Media					
9. Computer-Assisted Instruction					

6. Please identify the courses in which you have used specific instructional media in your teaching experiences.

	Drawing	Painting	Design (Graphic)	Print-making	Sculpture	Ceramic	Photo-graphy	Other (Please Identify)
1. Programmed Instruction								
2. Television, Video Tape, Motion Pictures								
3. Slides								
4. Filmstrips								
5. Overhead Transparencies								
6. Radio								
7. Tape Recording								
8. Multiple Media								
9. Computer-Assisted Instruction								

7. If you use instructional media in your studio-art classes, please check the purpose for which they were used. (You may check more than one item.)

	To Demonstrate	To Motivate	To Supplement	To Convey Basic Knowledge	Other (Please Identify)
1. Programmed Instruction					
2. Television, Video Tape, Motion Pictures					
3. Slides					
4. Filmstrips					
5. Overhead Transparencies					
6. Radio					
7. Tape Recording					
8. Multiple Media					
9. Computer-Assisted Instruction					

8. Please evaluate the effectiveness (i.e., how much better instructional objectives were achieved as a result of their use).

	Greatly Increased	Somewhat Increased	No Change	Somewhat Reduced	Greatly Reduced
1. Student Performance					
2. Student Satisfaction					
3. Teacher Performance					
4. Time Consumed					
5. Class Size					

APPENDIX B

LETTER TO THE RANDOMLY SELECTED FACULTY MEMBERS IN THIS STUDY

Oklahoma State University

DEPARTMENT OF EDUCATIONAL ADMINISTRATION
AND HIGHER EDUCATION

STILLWATER, OKLAHOMA 74078
309 GUNDERSEN HALL
(405) 624-7244

September 10, 1983

To: The Faculty Members

Dear Faculty Member:

A survey is being conducted at the college level in art departments throughout the country to evaluate the effectiveness of instructional media in teaching studio-art courses. This is part of my doctoral program at Oklahoma State University, under the direction of Dr. John J. Gardiner, Associate Professor in the Department of Educational Administration and Higher Education.

Your name is part of a randomly selected sample of studio-art teachers chosen for participation in this study. Your answer to the enclosed questionnaire will be kept strictly confidential. All identification will be removed when the data are summerized and your anonymity is assured.

This study will provide us with a picture of the effectiveness of instructional media in teaching studio-art courses. Your response to all questions is appreciated, and your cooperation is extremely important in assuring the completeness and accuracy of the final results. Please return the completed questionnaire in the self-addressed, stamped envelope within the next five (5) days.

Thank you for your help. If you have any questions regarding this study, please do not hesitate to call me at (405) 624-1705.

Sincerely,

Pornsanong B. Vongsingthong
Doctoral Candidate
Higher Education

APPENDIX C

THE FOLLOW UP LETTER TO THE
FACULTY MEMBERS

Oklahoma State University

DEPARTMENT OF EDUCATIONAL ADMINISTRATION
AND HIGHER EDUCATION

STILLWATER, OKLAHOMA 74078
309 GUNDERSEN HALL
(405) 624-7244

October 3, 1983

To: The Faculty Members

Dear Faculty Member:

A survey is being conducted at the college level in art departments throughout the country to evaluate the effectiveness of instructional media in teaching studio-art courses. This is part of my doctoral program at Oklahoma State University, under the direction of Dr. John J. Gardiner, Associate Professor in the Department of Educational Administration and Higher Education, College of Education.

Your name is part of a randomly selected sample of studio-art teachers chosen for participation in this study. A letter with attached questionnaire was mailed to you on the 10th of September, as of this date I have not received the completed questionnaire. Please respond to all the questions in the questionnaire attached to the letter and send it as soon as possible in the self-addressed, stamped envelope.

Other phases of this study cannot be carried out until the receipt of your response. Your participation is extremely important in order to have an accurate cross section sample of various size art departments and to ensure the accuracy of the final results. You may be assured that all identification will be removed and your anonymity is assured.

Thank you for your help. If you have any questions regarding this study, please do not hesitate to call me at (405) 624-1705. If your answer to the first letter is in the mail, I appreciate your participation in this study.

Sincerely,

Pornsanong B. Vongsingthong
Doctoral Candidate
Higher Education

APPENDIX D

A LIST OF THE INSTITUTIONS RESPONDING

ART SCHOOLS

Name and Address of Institution	Number of Respondents
1. Rudolph Schaeffer School of Design 2255 Mariposa Street San Francisco, California 94110	1
2. Art Department Norwich Art School 108 Crescent Street Norwich, Connecticut 06360	1
3. Corncoran School of Art 17th and New York Avenue NW Washington, D.C. 20006	1
4. Visual Arts Florida School of the Arts 5001 Saint John Avenue Palatka, Florida 32077	2
5. School of the Art Institute of Chicago Jackson Boulevard at Columbus Drive Chicago, Illinois 60603	2
6. Sioux City Art Center 513 Nebraska Street Sioux City, Iowa 51101	1
7. Mary College of Art and Design 10500 Georgia Avenue Silver Spring, Maryland 20902	1
8. Art Institute of Boston 100 Beason Street Boston, Massachusetts 02215	2
9. Massachusetts College of Art 364 Brookline Avenue Boston, Massachusetts 02215	2
10. Department of Visual Art Interlochen Arts Academy Interlochen, Michigan 49643	1
11. Minneapolis College of Art and Design 133 E. 22nd Street Minneapolis, Minnesota 55404	1

Name and Address of Institution	Number of Respondents
12. Joe Kubert School of Cartoon and Graphic Art, Inc. 45 Lehigh Street Dover, New Jersey 07801	1
13. Woodstock School of Art, Inc. Route 212 New York, New York 12498	1
14. The Art Students League of New York 215 West Fifty-Seventh Street New York, New York 10019	1
15. Ohio Visual Art Institute 124 E. Seventh Street Cincinatti, Ohio 45202	2
16. Mainline Center of the Arts Old Buck Road & Lancaster Avenue Philadelphia, Pennsylvania 19041	1
17. Philadelphia College of Art Broad Street & Spruce Street Philadelphia, Pennsylvania 19102	1
18. Studio School of Art and Design 117 Chestnut Street Philadelphia, Pennsylvania 19106	1
19. Wayne Art Center 413 Maplewood Avenue Philadelphia, Pennsylvania 19087	1
20. Burnley School of Professional Art, Inc. 905 East Pine Street Seattle, Washington 98122	2

JUNIOR COLLEGES

Name and Address of Institution	Number of Respondents
1. Art Department John C. Calhoun State Community College P. O. Box 2216 Decatur, Alabama 35602	1

Name and Address of Institution	Number of Respondents
2. Eastern Arizona College Thatcher, Arizona 95552	2
3. Department of Art and Photography Phoenix College 1202 W. Thomas Road Phoenix, Arizona 85013	1
4. Art Department Yavapai College Prescott, Arizona 86301	2
5. Department of Fine Art and Performing Art Butte Community College 3635 Butte Campus Drive Croville, California 95965	1
6. Art Department Cuesta College P. O. Box J San Louis Obispo, California 93406	1
7. Arts Humanities and Speech Division Modesto Junior College College Avenue Modesto, California 95350	1
8. Art Department Mount San Jacinto College 21400 Hwy 79 San Jacinto, California 92383	1
9. Art Department Sacramento City College 3835 Freeport Boulevard Sacramento, California 95833	1
10. Art Department Santa Ana College 17th and Bristol Santa Ana, California 92706	2
11. Department of Fine and Applied Art Solano Community College Suisun Valley Road P.O. Box 246 Suisun, California 94585	2

Name and Address of Institution	Number of Respondents
12. Department of Performing and Visual Arts Daytona Beach Community College P. O. Box 1111 Daytona Beach, Florida 32015	1
13. Division of Communication and Fine Arts Polk Community College Winter Haven, Florida 33880	1
14. Art Department College of Southern Idaho P.O. Box 1238 Twin Falls, Idaho 83301	1
15. Art Department Vincennes University 1002 W. First Street Vincennes, Indiana 47591	2
16. Department of Fine Arts Ellsworth Community College 1100 College Avenue Iowa Falls, Iowa 50126	2
17. Department of Fine Arts Kirkwood Community College 6301 Kirkwood Boulevard SW Kirkwood, Iowa 52406	2
18. Division of Arts and Humanities University of Maine at Augusta University Heights Augusta, Maine 04330	1
19. Art Department, Division of Humanities Macomb County Community College 14500 Twelve Mile Road Warren, Michigan 48093	2
20. Art Department Northwestern Michigan College 1701 E. Front Street Traverse City, Michigan 49684	1
21. Fine Arts Department Suomi College Quincy Street Hancock, Michigan 49930	2

Name and Address of Institution	Number of Respondents
22. Division of Humanities and Fine Arts West Shore Community College 3000 N. Stiles Road Scottville, Michigan 49454	2
23. Department of Art Saint Louis Community College at Forest Park 5600 Oakland St. Louis, Missouri 63110	2
24. Art Department Saint Louis Community College at Meramec 11333 Big Bend Boulevard Meramec, Missouri 63122	1
25. Creative and Social Cluster Central Community College - Platte Campus Mason Road Columbus, Nebraska 68601	1
26. Visual and Performing Arts Department Community College of The Finger Lakes Lincoln Hill Campus Canandaigua, New York 14424	1
27. Department of Art and Design Queensborough Community College Bayside, New York 11364	1
28. Division of Commercial Art and Photography Sullivan County Community College Leroy Road Loch Sheldrake, New York 12759	1
29. Language - Fine Arts Department Davidson County Community College Old Greenboro Road P.O. Box 1287 Lexington, North Carolina 27292	2
30. Fine Arts and Humanities Division Ohio University - Chillicothe Campus 571 W. Fifth Street P. O. Box 624 Chillicothe, Ohio 45601	1

Name and Address of Institution	Number of Respondents
31. Art Department Western Oklahoma State College 2801 N. Main Altus, Oklahoma 73521	1
32. School of Technical Training Oklahoma State University 4th and Mission Okmulgee, Oklahoma 74447	1
33. Fine Arts Department Bucks County Community College Swamp Road Newton, Pennsylvania 18940	1
34. Fine Arts Department Keystone Junior College College Avenue Factoryville, Pennsylvania 18440	2
35. Department of Fine Arts Philadelphia Community College 34 S. 11th Street Philadelphia, Pennsylvania 19107	1
36. Department of Engineering and Design Williamport Area Community College 1005 W. Third Street Williamport, Pennsylvania 17701	2
37. Department of Art Del Mar College Ayers at Baldwin Corpus Christi, Texas 78404	2
38. Art and Advertising Department San Antonio College 1300 San Pedro Avenue San Antonio, Texas 78284	1
39. Art Department San Jacinto College North Houston, Texas 77049	1
40. Art Department Temple Junior College 2600 S. First Temple, Texas 76501	1

Name and Address of Institution	Number of Respondents
41. Art Department Clark College 1800 E. McLaughlin Boulevard Vancouver, Washington 98663	2
42. Art Department Wenatchee Valley College 1300 Fifth Street Wenatchee, Washington 98801	2
43. Art Department Silver Lake College 2406 S. Alvern Road Manitowoc, Wisconsin 54220	1
44. Art Center Central Wyoming College Riverton, Wyoming 82501	1
45. Northwest Community College Powell, Wyoming 82435	2

SENIOR COLLEGES AND UNIVERSITIES

Name and Address of Institution	Number of Respondents
1. Department of Art, School of Humanities University of Alabama in Bermingham Building 3 Birmingham, Alabama 35294	1
2. Art Department University of Alabama at Huntsville 4701 University Drive Huntsville, Alabama 35899	1
3. Art Department Northern Arizona University Flagstaff, Arizona 86001	1
4. Department of Art Arkansas State University P.O. Box 1920 State University, Arkansas 72467	2

Name and Address of Institution	Number of Respondents
5. Art Department San Jose State University 125 S. Seventh Street San Jose, California 95192	2
6. Idyllwild School of Music and the Arts University of Southern California, Idyllwild Campus P.O. Box 38 Idyllwild, California 92349	1
7. Department of Art University of Southern Colorado, Belmont Campus 2200 Bonforte Boulevard Pueblo, Colorado 81001	1
8. Visual Arts Department Flagler College King Street Saint Augustine, Florida 32084	1
9. Art Department Florida Southern College Lakeland, Florida 33802	1
10. Faculty of Art, College of Arts and Sciences University of West Florida Pensacola, Florida 32504	1
11. Art Department Columbia College 600 S. Michigan Avenue Chicago, Illinois 60605	1
12. School of Art Southern Illinois University at Carbondale Carbondale, Illinois 62902	1
13. Department of Art and Design Southern Illinois University at Edwardsville Edwardsville, Illinois 62026	1
14. Department of Art Indiana State University Terre Haute, Indiana 47809	1
15. Department of Fine Arts Indiana University - Purdue University 1026 W. Berry Street Fort Wayne, Indiana 46804	1

Name and Address of Institution	Number of Respondents
16. Art Department Wabash College Crawfordsville, Indiana 47933	2
17. Department of Art Coe College Cedar Rapids, Iowa 52409	1
18. Art Department, College of Creative Expression Murray State University Murray, Kentucky 42071	1
19. Art Department Salisbury State College College and Camden Avenue Salisbury, Maryland 21801	2
20. Art Department Hillsdale College Hillsdale, Michigan 49242	1
21. Art Department Madonna College 36600 Schoolcraft Road Livonia, Michigan 48150	2
22. Department of Art, College of Arts and Letters Michigan State University 113 Kresge Art Center East Lansing, Michigan 48824	1
23. Art Department Bemidji State University Bemidji, Minnesota 56601	2
24. Art Department Saint Mary's University Terrace Heights Winona, Minnesota 55987	2
25. Department of Studio Art University of Minnesota 208 Art Building Minneapolis, Minnesota 55455	1
26. Department of Art University of Mississippi University, Mississippi 28677	1

Name and Address of Institution	Number of Respondents
27. Art Department, Division of Fine Arts Northeast Missouri State University Kirksville, Missouri 63501	2
28. Art Department Stephens College Columbia, Missouri 65215	1
29. School of Fine Arts Washington University Lindell and Skinker St. Louis, Missouri 63130	1
30. Art Department Concordia College Seward, Nebraska 68434	1
31. Department of Art Kearney State College Kearney, Nebraska 68847	1
32. Department of Art University of Nebraska - Lincoln 207 Nelle Cochrane Wood Hall Lincoln, Nebraska 68588	1
33. Art Department Colby - Sawyer College New London, New Hampshire 03257	2
34. Fine Arts Department Kean College of New Jersey Morris Avenue Union, New Jersey 07083	1
35. Art Department Trenton State College Pennington Road Trenton, New Jersey	1
36. Art Department New Mexico State University Box 3572 Las Cruces, New Mexico 88003	1
37. College of Fine Arts University of New Mexico Albuquerque, New Mexico 87131	1

Name and Address of Institution	Number of Respondents
38. College of Arts and Letters Western New Mexico University Silver City, New Mexico 88061	1
39. Art Department College of New Rochelle School of Arts and Sciences New Rochelle, New York 10801	1
40. Fine Arts Division Southampton College of Long Island University Southampton, New York 11968	1
41. Department of Fine Arts State University of New York College at Potsdam Potsdam, New York 13676	1
42. Art Department North Carolina Central University Fayetteville Street Durham, North Carolina 27707	1
43. Department of Art Antioch College Yellow Springs, Ohio 45387	1
44. Fine Arts Division University of Dayton 300 College Park Dayton, Ohio 45469	1
45. Department of Art Lewis and Clark College 0615 SW Palatine Hill Road Portland, Oregon 97219	2
46. Department of Fine Arts Beaver College Easton and Church Roads Glenside, Pennsylvania 19038	1
47. Art Department East Stroudsburg State College Fine Arts Building East Stroudsburg 18301	1
48. Art Department, School of Professional Studies Mansfield State College Mansfield, Pennsylvania	1

Name and Address of Institution	Number of Respondents
49. Department of Art Seton Hill College Greenburg, Pennsylvania 15601	1
50. Department of Art Brown University 79 Waterman Street Providence, Rhode Island 02912	2
51. School of Fine Arts Bob Jones University Greenville, South Carolina 29614	2
52. Art Program South Carolina State College Orangeburg, South Carolina 29115	2
53. Department of Art University of South Carolina Sloan College Columbia, South Carolina 29208	2
54. Department of Art Austin Peay State University Box 4677 Clarksville, Tennessee 37040	1
55. Art Department Fisk University P.O. Box 2 Nashville, Tennessee 37203	1
56. Art Department North Texas State University P.O. Box 5098 Denton, Texas 76203	2
57. Art Department Sam Houston State University Huntsville, Texas 77341	2
58. Department of Art University of Texas at Tyler 3900 University Boulevard Tyler, Texas 75701	1
59. Fine and Performing Arts Christopher Newport College 50 Shore Lane Newport News, Virginia 23606	1

Name and Address of Institution	Number of Respondents
60. Art Department Concord College Athens, West Virginia 24712	1
61. Department of Art Glenville State College High Street Glenville, West Virginia 26351	2

APPENDIX E

CONTINGENCY TABLES

5x5 CONTINGENCY TABLE I

FREQUENCY OF PROGRAMMED INSTRUCTION USAGE
VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																							
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																							
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	3	5	3	1	0	2	2	3	0	0	1	2	0	0	0	4	4	2	1	0
Somewhat Increased	0	0	0	0	0	14	9	13	8	1	5	5	3	2	2	2	1	3	0	2	1	1	3	1	0
No Change	134	134	134	134	134	1	4	2	5	17	0	0	1	4	5	0	0	0	2	1	0	0	0	3	4
Somewhat Reduced	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: PROGRAMMED INSTRUCTION

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	17	15	32.
	135	0	135.
COLUMN TOTAL	152.00	15.00	167.00
T	63.91		
R2	0.53		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	14	15	29.
	138	0	138.
COLUMN TOTAL	152.00	15.00	167.00
T	72.22		
R2	0.55		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	16	14	30.
	136	1	137.
COLUMN TOTAL	152.00	15.00	167.00
T	58.03		
R2	0.51		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	9	4	13.
	143	11	154.
COLUMN TOTAL	152.00	15.00	167.00
T	5.55		
R2	0.18		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	1	5	6.
	151	10	161.
COLUMN TOTAL	152.00	15.00	167.00
T	33.18		
R2	0.41		

5x5 CONTINGENCY TABLE II

FREQUENCY OF TELEVISION, VIDEO TAPE, AND MOTION PICTURE USAGE VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																								
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																								
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	15	26	13	5	1	9	10	10	1	1	1	2	1	0	1	0	0	0	0	0
Somewhat Increased	0	0	0	0	0	52	38	42	27	6	13	12	11	9	5	4	3	5	1	3	0	0	0	0	0
No Change	66	66	66	66	66	3	6	15	29	63	2	2	3	11	18	2	2	1	4	3	0	0	0	0	0
Somewhat Reduced	0	0	0	0	0	0	0	0	9	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: TELEVISION, VIDEO TAPE, MOTION PICTURES

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	67	27	94.
	69	4	73.
COLUMN TOTAL	136.00	31.00	167.00
T	13.19		
R2	0.27		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	64	27	91.
	72	4	76.
COLUMN TOTAL	136.00	31.00	167.00
T	14.74		
R2	0.28		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	55	27	82.
	81	4	85.
COLUMN TOTAL	136.00	31.00	167.00
T	20.16		
R2	0.33		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	32	11	43.
	104	20	124.
COLUMN TOTAL	136.00	31.00	167.00
T	1.31		
R2	0.09		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	7	10	17.
	129	21	150.
COLUMN TOTAL	136.00	31.00	167.00
T	17.44		
R2	0.31		

5x5 CONTINGENCY TABLE III

FREQUENCY OF SLIDES USAGES VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																								
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																								
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	5	11	11	1	2	16	20	10	2	0	14	19	5	6	0	4	7	8	2	0
Somewhat Increased	0	0	0	0	0	35	26	25	13	3	32	27	32	17	8	29	23	28	14	5	8	5	4	5	4
No Change	3	3	3	3	3	6	9	11	28	42	4	5	10	26	44	7	8	16	22	45	3	3	3	6	11
Somewhat Reduced	0	0	0	0	0	1	1	0	3	0	0	0	0	6	0	0	0	1	7	0	0	0	0	1	0
Greatly Reduced	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: SLIDES

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	40	103	143.
	10	14	24.
COLUMN TOTAL	50.00	117.00	167.00
T	1.24		
R2	0.09		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	37	101	138.
	13	16	29.
COLUMN TOTAL	50.00	117.00	167.00
T	2.90		
R2	0.13		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	36	87	123.
	14	30	44.
COLUMN TOTAL	50.00	117.00	167.00
T	0.02		
R2	0.01		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	14	46	60.
	36	71	107.
COLUMN TOTAL	50.00	117.00	167.00
T	1.49		
R2	0.09		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	5	17	22.
	45	100	145.
COLUMN TOTAL	50.00	117.00	167.00
T	0.29		
R2	0.04		

5x5 CONTINGENCY TABLE IV

FREQUENCY OF FILMSTRIPS USAGE VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																							
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																							
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	6	9	5	1	0	6	5	2	0	0	2	3	2	1	0	0	0	0	0	0
Somewhat Increased	0	0	0	0	0	26	24	20	12	4	11	12	14	6	2	5	4	4	2	1	0	0	0	0	0
No Change	106	106	106	106	106	2	1	9	16	30	2	2	3	8	17	1	1	2	4	7	0	0	0	0	0
Somewhat Reduced	0	0	0	0	0	0	0	0	4	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: FILMSTRIPS

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	32	24	56.
	108	3	111.
COLUMN TOTAL	140.00	27.00	167.00
T	41.37		
R2	0.45		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	33	24	57.
	107	3	110.
COLUMN TOTAL	140.00	27.00	167.00
T	40.10		
R2	0.44		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	25	22	47.
	115	5	120.
COLUMN TOTAL	140.00	27.00	167.00
T	42.22		
R2	0.45		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	13	9	22.
	127	18	145.
COLUMN TOTAL	140.00	27.00	167.00
T	9.44		
R2	0.23		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	4	3	7.
	136	24	160.
COLUMN TOTAL	140.00	27.00	167.00
T	2.06		
R2	0.11		

5x5 CONTINGENCY TABLE V

FREQUENCY OF OVERHEAD TRANSPARENCIES
USAGE VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																									
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	5	8	0	3	0	2	1	0	0	0	0	1	0	0	0	0	1	0	0	0
Somewhat Increased	0	0	0	0	0	19	13	16	8	0	1	2	3	1	0	2	1	1	0	1	1	1	1	0	0
No Change	135	135	135	135	135	0	3	2	9	24	1	1	1	2	3	0	0	1	2	1	1	0	1	2	2
Somewhat Reduced	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: OVERHEAD TRANSPARENCIES

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	24	6	30.
	135	2	137.
COLUMN TOTAL	159.00	8.00	167.00
T	14.71		
R2	0.28		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	21	7	28.
	138	1	139.
COLUMN TOTAL	159.00	8.00	167.00
T	25.04		
R2	0.36		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	22	5	27.
	137	3	140.
COLUMN TOTAL	159.00	8.00	167.00
T	9.96		
R2	0.24		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	11	1	12.
	148	7	155.
COLUMN TOTAL	159.00	8.00	167.00
T	0.01		
R2	0.01		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	0	1	1.
	159	7	166.
COLUMN TOTAL	159.00	8.00	167.00
T	4.51		
R2	0.16		

5x5 CONTINGENCY TABLE VI

FREQUENCY OF RADIO USAGE VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																									
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	1	0	1	2	0	1	1	1	0	0	3	4	0	0	0	1	3	2	0	0
Somewhat Increased	0	0	0	0	0	3	4	3	2	0	1	1	1	0	1	3	0	3	2	0	4	3	3	2	0
No Change	148	148	148	148	148	0	0	0	0	4	0	0	0	2	1	0	2	3	4	6	2	1	2	4	6
Somewhat Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: RADIO

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	4	13	17.
	148	2	150.
COLUMN TOTAL	152.00	15.00	167.00
T	96.46		
R2	0.61		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	4	12	16.
	148	3	151.
COLUMN TOTAL	152.00	15.00	167.00
T	85.62		
R2	0.58		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	4	10	14.
	148	5	153.
COLUMN TOTAL	152.00	15.00	167.00
T	64.79		
R2	0.53		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	4	5	9.
	148	10	158.
COLUMN TOTAL	152.00	15.00	167.00
T	19.58		
R2	0.32		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	0	2	2.
	152	13	165.
COLUMN TOTAL	152.00	15.00	167.00
T	10.79		
R2	0.25		

5x5 CONTINGENCY TABLE VII

FREQUENCY OF TAPE RECORDING
USAGE VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																									
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	5	9	5	1	0	5	5	3	0	0	3	3	1	1	0	0	1	0	1	0
Somewhat Increased	0	0	0	0	0	24	21	23	11	3	2	1	3	2	0	4	3	3	3	2	2	1	2	1	0
No Change	119	119	119	119	119	3	2	4	16	29	0	1	1	5	7	0	1	3	2	5	0	0	0	0	2
Somewhat Reduced	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: TAPE RECORDING

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	29	16	45.
	122	0	122.
COLUMN TOTAL	151.00	16.00	167.00
T	43.96		
R2	0.46		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	30	14	44.
	121	2	123.
COLUMN TOTAL	151.00	16.00	167.00
T	30.70		
R2	0.39		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	28	12	40.
	123	4	127.
COLUMN TOTAL	151.00	16.00	167.00
T	22.31		
R2	0.34		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	12	8	20.
	139	8	147.
COLUMN TOTAL	151.00	16.00	167.00
T	20.44		
R2	0.33		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	3	2	5.
	148	14	162.
COLUMN TOTAL	151.00	16.00	167.00
T	2.48		
R2	0.12		

5x5 CONTINGENCY TABLE VIII

FREQUENCY OF MULTIPLE MEDIA USAGE
VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																									
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	7	12	8	2	1	3	3	2	1	0	1	1	1	0	0	0	0	0	0	0
Somewhat Increased	0	0	0	0	0	21	11	16	12	4	6	6	6	4	1	0	0	0	1	1	0	0	0	0	0
No Change	128	128	128	128	128	1	6	5	12	24	0	0	1	2	8	0	0	0	0	0	0	0	0	0	0
Somewhat Reduced	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: MULTIPLE MEDIA

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	28	10	38.
	129	0	129.
COLUMN TOTAL	157.00	10.00	167.00
T	31.59		
R2	0.40		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	23	10	33.
	134	0	134.
COLUMN TOTAL	157.00	10.00	167.00
T	37.98		
R2	0.43		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	24	9	33.
	133	1	134.
COLUMN TOTAL	157.00	10.00	167.00
T	28.55		
R2	0.38		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	14	6	20.
	143	4	147.
COLUMN TOTAL	157.00	10.00	167.00
T	18.68		
R2	0.32		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	5	2	7.
	152	8	160.
COLUMN TOTAL	157.00	10.00	167.00
T	3.09		
R2	0.13		

5x5 CONTINGENCY TABLE VIX

FREQUENCY OF COMPUTER-ASSISTED INSTRUCTION
USAGE VS EFFECTIVENESS

Level of Effectiveness	Frequency of Usage																									
	Never					Once or Twice a Semester					Once or Twice a Month					Once or Twice a Week					Almost Every Class Session				
	Areas of Effectiveness																									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Greatly Increased	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	1	1	0	0	0	0	0	0	0
Somewhat Increased	0	0	0	0	0	0	0	0	0	0	4	2	5	1	1	3	1	2	2	0	0	0	0	0	0
No Change	158	158	158	158	158	0	0	0	0	0	0	1	1	5	5	0	1	0	1	3	0	0	0	0	0
Somewhat Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greatly Reduced	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A = Student Performance
B = Student Satisfaction
C = Teacher Performance
D = Time Consumed
E = Class Size

2x2 CONTINGENCY TABLES: COMPUTER-ASSISTED INSTRUCTION

A. Student Performance

CATEGORY	1	2	ROW TOTAL
	0	9	9.
	158	0	158.
COLUMN TOTAL	158.00	9.00	167.00
T	147.96		
R2	0.69		

B. Student Satisfaction

CATEGORY	1	2	ROW TOTAL
	0	7	7.
	158	2	160.
COLUMN TOTAL	158.00	9.00	167.00
T	109.63		
R2	0.63		

C. Teacher Performance

CATEGORY	1	2	ROW TOTAL
	0	8	8.
	158	1	159.
COLUMN TOTAL	158.00	9.00	167.00
T	128.67		
R2	0.66		

D. Time Consumed

CATEGORY	1	2	ROW TOTAL
	0	3	3.
	158	6	164.
COLUMN TOTAL	158.00	9.00	167.00
T	36.40		
R2	0.42		

E. Class Size

CATEGORY	1	2	ROW TOTAL
	0	1	1.
	158	8	166.
COLUMN TOTAL	158.00	9.00	167.00
T	3.93		
R2	0.15		

VITA 2

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Candidate for the Degree of

Doctor of Education

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