AN EVALUATION OF
A MEDIATED INTRODUCTION
TO TELEVISION PRODUCTION

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
THOMAS U. FOSTER
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ABSTRACT

AN EVALUATION OF A MEDIATED INTRODUCTION
TO TELEVISION PRODUCTION

By

Thomas U. Foster

The purpose of the research reported in this study was to evaluate a mediated presentation to be used as a means of introducing students to television production at Michigan State University. The experimental introduction systematically presented, via television and print, the basic television production information needed by the student in order to function in the studios of Instructional Television Services (ITV), Michigan State University.

An instructional development (ID) model was used as a guide for the systematic production of all materials for the mediated instructional unit.

The experimental treatment was evaluated using students enrolled in two of the Television and Radio Department's courses: basic radio production and basic television production.

The evaluation of this experimental treatment had three main parts.

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For part one, students in the radio course were randomly assigned into two groups: control and experimental.

One-third of the students enrolled in the conventional television production course were randomly assigned to the television studio laboratory group which utilized the same equipment demonstrated in the experimental treatment.

Two hypotheses were generated in order to compare the experimental group with the control group and the conventional group. Four additional hypotheses were generated in order to determine the effects of sex, class standing, experience, and status as a Department of Television and Radio major, within and between the experimental and conventional groups. All hypotheses were tested for significance at the .05 alpha level using analysis of variance.

The second part of the evaluation utilized the post-tests of the experimental group and the conventional group. An item analysis was performed on the tests for each group. The index of difficulty for each test item was then compared by group.

For the third part of the evaluation, an attitude questionnaire was administered to both the experimental group and to the Television and Radio Department faculty after both groups had been exposed to the new instructional unit.

The evaluation of the instructional unit supports the following conclusions:

1. Students in the experimental group learned from the instructional unit.

2. Students in the experimental group scored as high on the post-test after two hours of mediated instruction, plus home study, as did the students in the conventional group after more than two weeks (14 hours) of lectures and hands-on laboratory experience, plus home study of assigned readings in the required text.

3. A student's sex, previous television experience, class standing, or status as a television-radio major did not affect the student's performance on the post-test. This was true regardless of the style of instruction (mediated or conventional) that the student received.

4. Students receiving instruction via the mediated instructional unit had a higher degree of difficulty on questions concerned with the control room, the projection equipment, and the video switcher. The students who received instruction in the conventional manner experienced greater difficulty on the post-test with questions relating to camera mounts and studio lighting. Students in both groups had great difficulty with questions on the post-test relating to the television camera pick-up tube and the operation of a zoom lens. Hands-on experience or additional video taped material and increased study of the guidebook may be necessary to improve the scores of groups receiving the mediated instruction.

5. The students and the Department of Television and Radio faculty both expressed positive attitudes toward the mediated instructional unit after their exposure to it.

6. Instructional Development (ID), while a time-consuming process, increases the chances of producing a successful product. ID provides a systematic method for developing instruction. Because of this systematic approach, and the use of a model as a guide through the process, each of the functions in the process can be subjected to evaluation, as can the instructional development gestalt and the product it produces.

AN EVALUATION OF A MEDIATED INTRODUCTION

TO TELEVISION PRODUCTION

By

RBAN

Thomas U. Foster

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
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DOCTOR OF PHILOSOPHY

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1972

G78476

DEDICATION

Aunt Bunnie

She first introduced me to another world which was seen in a 3 x 4 ratio. She spurred my enthusiasm for flickering images in a magic land of Saturday afternoons. That was the beginning, but to my deep regret, she died before she could share this moment with me.

My Mother and Father

Your love and generosity has always been greater than I expected or deserved.

...and...

Virginia

I look at you
And know me better,
For much of what I am
Is made of you.

--Lois Wyse

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ACKNOWLEDGEMENTS

The classes you go to and the papers you write do not an education make! The heart of my graduate program and the source of my growth has been the example set by the people to whom I was closest and who provided the inspiration and the sheer pleasure of learning. This dissertation signals the end of one phase of my life and the beginning of another. These acknowledgements, then, are for more than just this study.

First, to my "all star" doctoral committee.

Dr. Erling Jorgensen, chairman--Several of the faculty at San Diego State made a similar comment when they learned I was going to Michigan State for graduate work. "That's marvelous--because of your interest in ITV you will get a chance to know Erling Jorgensen." Our association has indeed been marvelous and he has paid me the supreme compliment by asking me to become his colleague at Instructional Television Services. Dr. Jorgensen has truly been a good friend and chairman.

Dr. Dale Alam--Dr. Alam, through his unstructured structure, forced me--without the slightest overt suggestion--to appraise continually my own value system and to look at and appreciate the many value systems of others.

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Dr. Thomas Baldwin--With a sharp wit and a wry sense of humor, Dr. Baldwin proves that research and researchers need not be dull or humorless.

Dr. Robert Schlater--From my first days at MSU, Dr. Schlater has remained a close and valued friend. As Chairman of the Television and Radio Department, Dr. Schlater made possible the project reported in this study. As a friend, he was always ready to boost my spirits when things went wrong and to encourage me to continue.

Dr. Paul Witt--The relationship Ginny and I have had with Dr. Witt is something very special and its effects will last our entire lives. To me, Dr. Witt is synonymous with professional and personal ethics and he has inspired me to live up to the high standards he sets and lives by. When faced with a decision, I now find myself asking, "What would Dr. Witt do?" It's a hell of a standard to set for oneself, but I am going to try very hard to live up to it.

The faculty and staff of both Instructional Development and Technology/IMC and the Department of Television and Radio were very influential and supportive throughout my graduate education.

I would also like to give special thanks to Dr. Kent Gustafson who has been very influential both in class and out. He encouraged me to explore, question and expound on our field so that I could arrive at a philosophy I am comfortable with

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but which continues to change. His personal and professional help in this study is greatly appreciated as well.

The students in the ID&T graduate program were more influential than they realize in making the doctoral program such a pleasurable and intellectually rewarding experience. Bonds have been formed which will last a long time. The special support and friendship of Harry Ackerman (and family) and Marv Duncan was a rare thing indeed.

And finally, to Harry and Dot Bunting--You gave me your finest possession and made my life richer and fuller than I thought possible.

WILLARD

For more than a year and a half, the project reported in this study was known as "Willard." The name was selected in order to avoid having to refer to the project as "it" or the rather cumbersome "Project to Design, Produce, and Evaluate Mediated Materials for an Introduction to Television Production at Michigan State University." In other words, I felt the project should have a name, and Willard had a little more pizzazz than Bill or John. The word is not an acronym and has no inherent meaning. In retrospect, this name may not have been the wisest choice: a movie bearing the same name was released about six months after the project was given its nom de plume. Its key promotional slogan admonished: "Where your nightmares end, Willard begins!" At time, there was more than a little truth in that slogan for all of us connected with the Willard project.

In attempting to transfer the research into "academic-ese" for the sake of this dissertation, the name was dropped. However, considering that the people who worked hardest on the project and were closest to it have known the project by only one name, it is appropriate to recognize both them and Willard at this time.

Lawrence Brown--Larry was the project co-developer. He wrote the major portion of the first script drafts and was a partner in all of the developmental activities.

Paul Witkowski--Paul was the television director and Willard's patron saint. Paul, like almost everyone who became associated with Willard, went way beyond the call of duty in his enthusiam and support of the project. If it weren't for Paul, I'm not sure the project would be completed yet.

The entire staff at Instructional Television Services gave me this same kind of help and support and I am most grateful to them all.

John Abel and Kim Peterson--Both John and Kim allowed us to disrupt their television and radio classes, provided the subjects used in the experimental part of the study, and rearranged class schedules on very short notice at times to provide us with whatever help we needed from them and their classes.

Dick and Louise Snoke--Dick polished the scripts and did the voice-over for the video tapes on his own time. He also appeared on camera as the host/narrator as a result of release time from his other duties given him by another of Willard's friends, M. Ali Issari, Head, IMC Film Division. Dick and Louise both gave generously of their time and talents during the development of Willard and during the many drafts of this study.

T. U. F.

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CHAPTER I

INTRODUCTION

Students entering the only television production course offered by the Television and Radio Department at Michigan State University exhibit vast differences in cognitive knowledge regarding television production. The current structure of this course consists of lectures, hands-on laboratory experience in a television studio, and assigned readings in a required text. This structure gives no assurance that the introduction to television production allows each individual to acquire the knowledge needed to make the actual production phase of the course most beneficial. Extremely large classes make this kind of instruction difficult, if not impossible.

The course introduction includes information on television production equipment and the responsibilities of the television production crew which is necessary before the student can benefit fully from participation in production exercises. Additionally, the student must understand the terminology common to television production, the function and operation of the television control room and studio, and the necessity for team-work on a production crew.

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Statement of the Problem

The Department of Television and Radio at Michigan State University has limited resources available for teaching its high enrollment television production course, TR 202. Limitations in studio/laboratory time, people, and facilities cause the introduction to television production to be less effective and less efficient for student learning than is desired by the TR Department. The problem, therefore, consists of the following inadequacies:

1. There is no standard measure of the students' entry behavior.

2. Mid-term and final examinations reveal that most students have a reasonable grasp of the cognitive knowledge necessary to function adequately in a television studio by the end of the course. However, there is no assurance that they have this knowledge by the time the production exercises begin in order to make these exercises most meaningful.

3. There is no provision for the remedial help of slower learners once the production phases have begun.

4. There is no standard measure of what the students learn during their introduction to television production, which would provide data for course revision or longitudinal comparative studies.

Purpose of the Study

The purpose of the research reported in this study is to evaluate the instructional unit designed to alleviate the problem stated above. This instructional unit will be used as a means of introducing students to television production at Michigan State University. Television, supplemented by printed materials, will be used to present systematically the information needed by the student in order to function effectively in the studios of Instructional Television Services (ITV), Michigan State University.

A series of six videotaped instructional segments, a guidebook and pre- and post-tests (all hereinafter referred to as the "instructional unit") provides information which includes:

Function and operation of the television control room.

Function and operation of the television studio.

The members of a basic television production crew and the individual responsibilities of each crew member.

Production tools and equipment used by the crew members.

Basic terminology common to television production.

Identification of basic television production equipment; components of that equipment; how the equipment is operated, and how it is used during a production.

The mediated introduction should allow students to achieve post-test scores on a written test that are as high--or higher--than those of students receiving the current conventional method of introduction (lectures, hands-on

experience, and reading the required text) during the initial three-week segment of the term. This mediated instructional unit is intended to achieve these results outside of the television studio, and without using any of the instructors' time.

General Statement of Hypotheses

In order to evaluate the effectiveness of the mediated experimental instructional unit, two hypotheses were generated for consideration in this study:

Hypothesis 1. Subjects receiving the experimental treatment will have a higher mean score on the post-test than the subjects who did not receive that instructional unit.

Hypothesis 2. Subjects receiving the experimental treatment will have a higher mean score on the post-test than the subjects who received instruction via the conventional classroom/laboratory techniques.

Hypotheses were also generated to determine if sex, previous experience, class standing, or status as a Television-Radio major would have an effect on the post-test scores of the experimental and the conventional groups:

Hypothesis 3. In the experimental and conventional groups, male subjects will have a higher post-test mean score than female subjects.

Hypothesis 4. In the experimental and conventional groups, subjects having previous television experience will have a higher post-test mean score than subjects with no previous television experience.

Hypothesis 5. In the experimental and conventional groups, there will be a difference in post-test mean scores according to the class standing of the subjects. The post-test mean scores will increase as the class standing increases, with freshmen achieving the lowest scores and graduate students achieving the highest scores.

Hypothesis 6. In the experimental and conventional groups, subjects who are majors in the Department of Television and Radio will achieve a higher posttest mean score than subjects who are not majors in the Department of Television and Radio.

Importance of the Study

The amount of studio production time available to students for hands-on experience is limited and thus valuable. The time spent in the studio by the student, therefore, must be used as beneficially as possible. It is then necessary to determine which instructional objectives can be achieved outside the studio. If some objectives now being achieved as part of the hands-on experience in the studio can be achieved in a classroom, the limited available studio time can be used more effectively by the student.

TR 202 is the only course offered by the Television and Radio Department which teaches basic production skills. The introductory portion of this course must present to its students the basic knowledge of television production equipment and the responsibilities of the production crew which are necessary for effective student participation in required subsequent studio productions. Also required is an understanding of the terminology common to television production, the function and operation of the television control room, and the necessity for team-work on a production crew.

One of the intrinsic advantages of any mediated instruction is that slower learners can be exposed to the material as often as necessary to bring their achievement level up to the group norm. This goal is difficult to achieve when instruction is solely dependent on a live instructor and when limited practice time is available in the studio.

Background

The undertaking reported in this study is intended to evaluate mediated materials designed to give students a specific but basic introduction to television production at Instructional Television Services (ITV), Michigan State University. This introductory material is presently taught by lecture, hands-on experience in the television studio, and assigned readings in a required text and as part of the basic television production course (TR 202). Lack of time, personnel and equipment hamper the adequate introduction of new students to the intricacies of the television studio, control room, equipment, and the many responsibilities relating to these facilities. The typical enrollment of the TR Department is close to 400 undergraduate majors, all of whom are required to take TR 202. This has resulted in an enrollment approaching sixty students per term for the course. The responsibility for teaching TR 202 has rotated primarily among three of the seven TR Department faculty members. The course was

taught by a graduate assistant during the 1971-72 academic year, with three graduate assistants assigned as laboratory instructors to aid the principal instructor.

Currently, the course is divided into three laboratory sections, each with its own laboratory instructor. The average group size is between sixteen and twenty students. During the term, the laboratory sections receive four hours per week of practicum in two sessions in the television studios. Once a week, the combined sections assemble in a classroom for a two-hour lecture period with the principal instructor. As the term progresses, all students are required to produce a variety of productions. An example of the type of production asked for is a sixty-second commercial. The students are graded on this production in their capacity as producer, not on the skill with which they assume other crew positions. A mid-term examination is also given to evaluate their cognitive knowledge of television production. Assignments from a basic television production text are required reading during the course.

The TR Department is powerless to determine which students--or how many--may enter the department as majors. This situation results in a high student-to-teacher ratio: 400 undergraduate students; 45 graduate students; 7 faculty. A proposal has been presented to the University to allow the TR Department to limit its enrollment and to permit it to exercise control over which students may be admitted to the

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department. By June 1972, the University had not acted on this proposal.

Another obstacle faced by the TR Department is that it has neither production facilities nor equipment of its own. This lack necessitates borrowing studio time and space from the University's Instructional Television Services (ITV) and the University's television station, WMSB. Given the many other requirements for the use of these two facilities, studio time available to the TR Department has been extremely limited.

The chairman of the TR Department recognized that an instructional problem existed and decided that an alternative instructional model would have to be developed. The Department had demonstrated previous expertise in developing mediated instructional materials for use in its basic radio production course, materials which had proven to be highly successful. Based on this success, the Department chairman reasoned that materials might likewise be developed which would be appropriate for the television course as well.

On December 7, 1970, a proposal was submitted to Michigan State University's Educational Development Program (EDP). The proposal requested financial support and expertise for a project to develop instructional materials to be used in the basic television production course (TR 202). This request was approved by EDP in a letter to the TR Department dated December 29, 1970. The materials to be evaluated in this study were then developed between January, 1971, and May, 1972.

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A Systems Approach

The Department of Television and Radio was determined to develop an instructional product which would consistently meet its instructional goals. A haphazard type of development would not achieve that end. Thus, the TR Department began to investigate the possibilities of using a "systems approach" in the development of a new method of instruction. This approach is called "Instructional Development," and is frequently abbreviated to simply "ID." The systems approach is a series of steps--or functions--which lead from initial problem statement to final implementation of a solution. It is a means of systematically planning, organizing and developing innovative instruction.

After investigating this type of approach, the Department decided to use a systems approach for the development of a new instructional unit. The evaluation of that unit is the basis of this study.

Definitions

Several terms used in subsequent parts of this study require precise definition. Some terms such as "functional factors" and "instructional setting" have been given their own definitions by practitioners of the systems approach and are not necessarily part of the educator's standard vocabulary. All definitions marked with an asterisk (*) are derived from

the National Special Media Institutes' Glossary (1971, pp. 3-7). Other terms such as "project coordinator" and "project developer" were defined by the author for the purpose of this study.

Definitions--as used in this study

1. *Enabling Objectives (E.O.)

   Intermediate objectives, and the statements of those objectives, which lead to a particular terminal performance objective. These objectives map out what the learner must accomplish in order to eventually exhibit the terminal behavior.

2. *Entry Behavior

   Behavior that must have been mastered by the learner prior to instruction in order for him to respond appropriately to new instruction. [e.g., in order to enter into this program the student must be able to add and subtract two digit numbers without error.]

3. *Function

   Major activities or characteristic actions of a particular sub-system which are required to achieve the goal of that sub-system. [e.g., the sub-system of record keeping in a school is made up of several functions or activities such as recording data on students and personnel.]

4. *Functional Factors

   Physical, spatial, mechanical and/or structural factors which bear upon the harmonious operation of a given system; such as classrooms, media, talent (i.e., types of abilities), or a policy which prescribes relationships. The theoretical relationship devoid of the human factor.

5. *Human Factors

   The decision-making characteristics and life styles of individuals participating in a system which modify the inherent functional relationships of the system.

6. *<u>Instructional Development (ID)</u>

A systematic way of analyzing learning activities and instructional problems and of developing validated, practical solutions to these problems.

7. <u>Instructional Television (ITV)</u>

(1) Any televised program whose major purpose is to instruct; (2) Instructional Television Services, Michigan State University.

8. *<u>Instructional Package</u>

The validated finished instructional unit and all materials ready to be used for instructional purposes.

9. *<u>Instructional Prototype</u>

A "first or experimental or untried model" of an instructional unit which is tested to determine what revisions are necessary for students to achieve the terminal objectives. The instructional prototype precedes wide scale use for instructional purposes.

10. *<u>Instructional Setting</u>

The specific environment and relevant variables influencing the environment in which instruction is taking place. [e.g., characteristics of the learner, educational personnel, community, nature of the body of knowledge, school resources and their relationship.]

11. <u>Project Coordinator</u>

The person who coordinates all of the resources available to an instructional development project. The coordinator must decide which resources--both human and non-human--are to be used, how they are to be used, and in what way they are to be used. The coordinator should guide the subject matter expert and/or the instructional package author through the I.D. process.

12. <u>Project Developer(s)</u>

Person(s) actively involved in all phases of developing an instructional package from its early stages through final evaluation. In this study, the project developers were the Project Coordinator and one other person.

13. Project Director

The person responsible for the entire instructional development project. The Project Director may delegate the responsibility for any of the aspects of the project. The Project Director of the project reported in this study was also the Chairman of the Department of Television and Radio, Michigan State University.

14. *Recycle

Returning at any specified time to a previous Instructional Development function or activity to revise or improve the Instructional Development product. [e.g., each revision of an instructional prototype package entails recycling through appropriate stages and functions of the Instructional Development Process.]

15. Researcher

The author of this study and also the coordinator of the Instructional Development project reported in this study.

16. *Sub-System

Any entity or collection of entities which are defined as being a part of a larger system but which may be differentiated for purposes of observation. [e.g., an Instructional Development activity such as identifying objectives may be a sub-system of a total school district curriculum reform program.]

17. *System

The total of separate parts working alone and with each other to achieve an accepted or agreed outcome or goal. [e.g., the various parts and sub-systems of a clock working together to achieve the telling of time.]

18. Television Director

Coordinator of all production elements during the rehearsals and video taping of the mediated portion of the instructional package.

19. *Terminal Performance Objective (T.P.O.)

The kinds of behavior, and statements which define the behavior, students will exhibit after successfully completing the instructional unit.

Organization of the Study

This study is organized into six main parts, or chapters.

Chapter One presented a statement of the problem and explained the purpose of the study.

It has provided a background of the problem and proposed hypotheses. The chapter also included definitions to be used in subsequent parts of the study.

Chapter Two provides a rationale for using the instructional development systems approach. This chapter will then offer a step-by-step accounting of the development of the instructional unit being evaluated in this study.

Chapter Three is a review of the literature pertaining to instructional television.

Chapter Four contains the design of the study and includes a description of the instrumentation, stimulus materials, experimental procedures and design, and limitations of the study.

Chapter Five is devoted to the results of the study with subsequent analysis and discussion of those findings.

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*Instructional Development Institute Glossary and Reference Materials, National Special Media Institutes, 1971, pp. 3-7.

Observations regarding the use of Instructional Development to produce the instructional unit will also be found in this chapter.

Chapter Six contains a summary of the study followed by conclusions. A discussion of the results with attendant recommendations and implications for further research conclude this chapter and the study.

CHAPTER II

REVIEW OF SYSTEMS LITERATURE AND THE SYSTEMATIC DEVELOPMENT OF THE INSTRUCTIONAL UNIT

The purpose of this chapter is to provide a brief background on systems, the systems approach, and Instructional Development. This background supplies the rationale for using Instructional Development to systematically produce the instructional unit, and for using an instructional development model as a guide throughout the process. The background is then followed by a step-by-step account of the design and production of the instructional unit. This account is presented according to the steps of the model used rather than in a strict chronological fashion.

Systems, The Systems Approach, and Instructional Development

When discussing systems, system design, and system research, most writers, such as Finn (1956), refer to weapons systems' design as a starting point. The word "system," derived from the Greek "systema," means "to place together." Kaufman (1968, p. 416) defines a system as:

> ... the sum total of separate parts working independently and in interaction to achieve previously specified objectives.

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Bela Banathy injects more of man into his definition. Banathy (1968, p. 2) states:

> ... systems can be defined as deliberately designed synthetic organisms, comprised of interrelated and interacting components, which are employed to function in an integrated fashion to attain predetermined purposes.

He concludes, then, that "... the best way to identify a system is to reveal its specific purpose."

Another way to view or define a system is set forth by Finan (1962, p. 517). He states:

> A system is a way of conceptualizing experience, according to which the components of an organized grouping interact to achieve a designated purpose.

Peach (1960, p. 15) feels that the definition of any system is, in a sense, arbitrary:

> [Systems' definitions] depend heavily on *a priori* definitions of a task or problem.

A more detailed description is offered by Allport (1955, p. 469) which he feels also defines an *instructional* system:

> [A system is] any recognizably delineated aggregate of dynamic elements that are in some way interconnected and interdependent and that continue to operate together according to certain laws and in such a way as to produce some characteristic total effect. A system, in other words, is something that is concerned with some kind of activity and preserves a kind of integration and unity; and a particular system can be recognized as distinct from other systems to which, however, it may be dynamically related. Systems may be complex; they may be made up of interdependent sub-systems, each of which, though less autonomous than the entire aggregate, is nevertheless fairly distinguishable in operation.

Beer (1961, p. 14), like Banathy, indicates that systems are inventions of man, created as a means to provide order to his world. He states:

> Systems are constructs of the human mind and an intuitive method of looking at nature.

Banathy (1968, p. I) categorizes the system in man's universe into three types:

1. Natural systems--such as the solar system.
2. Hybrid systems--Hydroelectric plants, for example. These kinds of systems are a combination of natural and man-made systems.
3. Man-made systems--These would include school systems or instructional systems.

If man has created those systems outside of nature (and those within nature are systems only by definition of man), it would seem logical or "systematic" that man would also devise a means to define, create, maintain and evaluate those systems. Man has indeed done just that. The technique is called "the systems approach," and, as it applies to education, is designated "the systems approach to instructional development." The latter has been shortened to "instructional development" (ID), and its practitioners, "instructional developers." Hamreus (1968, pp. I-6) defines it further when he states:

> The phrase "systems approach to instructional development," when more completely stated, becomes "systems approach to instructional systems development."

There are several aspects common to most views or definitions of the systems approach. Banathy (1968, pp. 21-22) has succinctly listed five aspects which incorporate the ideas or components that emerge most frequently in systems approach literature:

1. An insistence upon a clear definition of the purpose of the system, and upon the formulation

of performance expectations stated specifically enough to enable the construction of criterion measures that will reveal evidence of the degree to which expected performance has been attained.

2. The examination of the characteristics of the input.

3. The consideration of alternatives and the identification of what has to be done and how, by whom or by what, when and where, so as to ensure that the predetermined performance will be attained.

4. The implementation of the system and the testing of its output for the purposes of measuring the degree to which performance expectations are being met and assessing the efficiency of systems operation.

5. The identification and implementation of any adjustments needed in order to ensure the attainment of the purpose and optimize system output and system economy.

The systems approach to solving problems is surely not a new concept. One can certainly imagine that the great ancient conquerors such as Cyrus or Darius or Alexander the Great must have had an awareness of their systems (the worlds in which they lived), as each devised a plan or approach to conquer the system. The plans designed and developed by the ancient architects of the Seven Wonders of the World must also have included a plan for evaluating the progress of their labors. The construction of the Great Pyramids of Egypt or the Hanging Gardens of Babylon or the Mausoleum at Halicarnassus may not have been a systems approach, but the approach was most certainly <u>systematic</u>.

Most modern authors feel that systems, systems analysis, and the systems approach came to be recognized as useful and

proven tools with the development of missiles and missile guidance systems.

A strong case could be made, however, by citing England as the creator of a modern-day systems approach to problem solving. During the Battle of Britain, when sheer survival was the objective, it was necessary to coordinate many efforts and allocate available resources in a very deliberate, specific and systematic manner. Despite England's success in these activities, it is only now, many years after the close of World War II, when the development, use and evaluation of efforts and resources is referred to as "the systems approach."

Banathy (1968, p. 16) claims:

> The success of the use of the systems approach has been clearly manifested in industry, business and government. The systems approach is neither a new invention nor is it a miraculous discovery. It is rooted in such diversified fields as logic, philosophy, communication theory, psychology, and others. It is a pragmatic application of the scientific method; it is a synthesis of successful methodologies in problem solving, planning and development, used by many people in many fields over a long period of time. Briefly, <u>the systems approach is common sense by design</u>.

Corrigan and Kaufman (1965, p. 71) define the systems approach as ...

> ... formal analytical planning methods for progressing from the specifications of system mission objectives to the achievement of those objectives through the controlled and orderly specifications of parts making up the total system and the integration of parts according to functions to be performed into a total system that achieves stated mission objectives.

Referring to the systems approach in education, Twelker, Urbach, and Buck (1971, p. 3) see it as an aid to management:

> Systems approaches are management techniques of seeking solutions to educational problems, or at least of making maximum use of every resource available to the improvement of education.

Another educational facet is emphasized by Hamreus (1968, pp. I-16) who states that "the systems approach is a means of thoroughly planning and organizing for the systematic design and development of instruction."

Banathy (1968, p. 22) lists seven requirements which he feels are necessary in order to transform system strategies into the domain of education:

1. Formulate specific learning objectives, stating whatever the learner is expected to be able to do, know, and feel as an outcome of his learning experiences.

2. Develop tests to measure the degree to which the learner has attained the objective.

3. Examine the input characteristics and capabilities of the learners.

4. Identify whatever has to be learned so that the learner will be able to perform as expected.

5. Consider alternatives from which to select learning content, learning experience, components, and resources needed to achieve the stated objectives.

6. Install the system and collect information from the findings of performance testing and systems evaluation.

7. Regulate the system. The feedback from testing and evaluation will serve as a basis upon which the system will be changed--by design--in order to ensure ever-improving learning achievement and optimum systems economy.

When these requirements are met and the transformation of system strategies into the domain of education takes place, the systems approach is called, by many authors, "instructional development." As though he were emphasizing Banathy's seventh requirement to transform systems strategies into the domain of education Urbach (1970, p. 21) states that "feedback is the dynamic which keeps instructional development flexible and adopting." This is of course true in any systems approach.

The systems approach is frequently illustrated by the popular academic exercise known as a model. This is particularly true in instructional development.

However, Urbach (1970, p. 2) warns:

> Models always have reasonably clear rationales and the appearance of possessing very clear-cut approaches. Unfortunately, few instructional problems ever fit the model precisely.

Urbach also offers some insights into the role a model plays in the "common sense by design" theory:

> Instructional Development is based on a network of people--resources--and facilities. Local variations in time, energy and resources can make it impossible to follow the proposed model. It is at this point that instructional development must depend on the judgment of the people involved. In a sense, instructional development is common sense by design, but to most people who have directed an instructional development effort, instructional development models provide an 'un-common' approach. The model insures that all design elements are at least attended to. Many efforts in instructional improvement have been ultimately destroyed by lack of attention to some essential component.

Five instructional development models, all developed between 1965 and 1968, are most often mentioned in ID literature and appear to have been used most often:

Name of Model	Author	Date
1. M.S.U. Instructional Systems Development Model	Barson	1965
2. Systems Approach for Education (SAFE)	Corrigan	1966
3. Project MINERVA Instructional Systems Design	Tracey	1967
4. Banathy Instructional Development System	Banathy	1968
5. Teaching Research 6-Step mini-model 22-Step maxi-model	Hamreus	1968

The M.S.U. Instructional Systems Development Model created by Barson has been used to develop college-level courses at Michigan State University (Barson, 1967). It was developed between 1963 and 1965, tried out at M.S.U. and three other universities, and then evaluated. Each of the participating universities ended up "adapting" rather than "adopting" the model. Thus, an individual variation of the Barson model is actually in use at each university, a model which applied to the particular institution's specific situation.

The Systems Approach for Education (SAFE) model was developed to be used for problem solving by educators. Twelker et al. (1971, p. 4), report that the model "... has been used at the public school, state department and educational research laboratories levels."

The Tracey or MINERVA Model (Tracey, Flynn and Legere, 1967) was developed by the U.S. Army as an instructional systems model. It was successfully used by the U.S. Army Security Agency Training Center and School to analyze and renovate its entire training effort.

The Banathy Instructional Development Model was introduced in 1968 and was designed specifically for instructional systems developers (Banathy, 1968). Banathy believes that his model structures the learner as the main component with the system organized around him. This model has also been used in higher education.

Hamreus (1968) presents two models; or, more accurately, two versions of the same model. His three-stage, 22-step model was developed for the professional instructional developer. His six-step mini-model is a simplified version of the maxi- or 22-step model and is intended for a less sophisticated audience.

In addition to these five models, one of the latest to emerge is the National Special Media Institutes' (NSMI) nine-step model (National Special Media Institute, 1971). This model was derived through an analysis of many different types of models, including the five discussed above. The NSMI model developers determined that all of the models were addressing themselves to the same task--that of developing instruction "... in similar ways, but with different descriptions and language" (Twelker _et al._, 1971, p. 18). The NSMI model, then, is a synthesis of many systems approaches or instructional development models. "The [9-step] model is simple, yet complex enough to guide the developer through the steps of syst

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It is this version, the three-stage, nine-step NSMI model, which was chosen to guide the systematic development of the materials to be evaluated in this study (Figure 2.1).

The systems approach to problem solving enjoys popular support in the academic community. As Mood (1964, p. 1) states:

> Almost everyone is in favor of the systems approach in the same sense that almost everyone is in favor of God, country and motherhood.

For the Department of Television and Radio, however, there was a stronger rationale than popular support for the use of a systems approach, i.e., instructional development, in the solution of its problem: the project director wanted a systematic guide or "checklist" which would lead the project from problem identification to final evaluation, implementation and recycling. Instructional development and the NSMI model seemed to offer this kind of help. Hamreus (1968, pp. I-4) says that instructional development ...

> ... can be regarded as an empirically derived framework which serves as a guide for systematically proceeding toward the solution of some defined problem in the educational industry.

It was this "framework" which would answer the developmental demands of the Department of Television and Radio. As though in additional response to those demands, Twelker *et al.* (1971, p. 2) offered further support for using the systems approach and an instructional development model:

DEFINE	Function 1 IDENTIFY PROBLEM ● Assess Needs	Function 2 ANALYZE SETTING ● Audience	Function 3 ORGANIZE MANAGEMENT ● Tasks

DEFINE	Function 1 IDENTIFY PROBLEM ● Assess Needs ● Establish Priorities ● State Problem	Function 2 ANALYZE SETTING ● Audience ● Conditions ● Relevant Resources	Function 3 ORGANIZE MANAGEMENT ● Tasks ● Responsibilities ● Timelines
DEVELOP	Function 4 IDENTIFY OBJECTIVES ● Terminal ● Enabling	Function 5 SPECIFY METHODS ● Learning ● Instruction ● Media	Function 6 CONSTRUCT PROTOTYPES ● Instructional Materials ● Evaluation Materials
EVALUATE	Function 7 TEST PROTOTYPES ● Conduct Tryouts ● Collect Evaluation Data	Function 8 ANALYZE RESULTS ● Objectives ● Methods ● Evaluation Technique	Function 9 IMPLEMENT/RECYCLE ● Review ● Decide ● Act

Figure 2.1 NSMI nine-step ID Model.

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> The end result of using a systematic development of instruction is an instructional system. An instructional system is, therefore, a tried and tested combination of related materials and events that consistently achieve specified objectives. <u>In more formal terms an instructional system is an empirically developed set of learning experiences which bring about a given learning outcome for a given set of learners with a given degree of reliability</u>.

<u>The Instructional Development Process</u>

The overview discussion of the instructional development process which follows is, as ordained by the structure of the NSMI model, <u>not</u> a chronological listing of events. It is, rather, a report of strict adherence to the order of the model's functions and the activities required therein as applied to the development of the instructional unit being evaluated in this study.

<u>Function 1: IDENTIFY THE PROBLEM</u>

Function 1 of the NSMI model requires that instructional developers identify the problem. This first step involves activities such as assessing needs, establishing priorities and clearly stating a particular problem as agreed upon by all concerned. Thus, in following their "checklist," the Department of Television and Radio project developers defined what existed in the curriculum to introduce students to television production, and determined what was ultimately desired for those students.

<u>What existed</u> was a short period of time in an already over-crowded one-term television production course for an

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introduction to television production. The students were greeted by instructors at the first two-hour meeting of the class, told in general terms what the course was about, divided into three laboratory sections, and finally introduced to the laboratory instructor for each section. Three campus television studios were used for these laboratory sections: one at WMSB, and two located at ITV. Each of these studios was equipped with slightly different equipment.

Another two-hour lecture period ensued in which no visuals were employed. The students were given an introductory reading assignment in the required text and told to meet in their respective laboratory sections. During this next two-hour class, the students got their first look at the inside of the studio. Each group--average size 18 to 20 students--was walked through their particular studio and given an introductory explanation and some brief demonstrations of how the various pieces of equipment were operated. The general studio rules--or "do's-and-don't's"--were also outlined.

During the next two-hour assigned period, the students began to participate in simple, two-man interview production exercises. These exercises continued until each person in the lab section had rotated through each crew position, and had acted out the on-camera roles. This entire introduction process took three weeks. It included one 2-hour lecture and two 2-hour laboratory periods per week. At the end of three weeks all laboratory groups rotated to another studio

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and the process started anew, with each studio group doing a subsequently more sophisticated production exercise. After all groups had been through the three studios, they were again rotated to their original studios wherein they were to produce a final fifteen-minute production.

The students were given a mid-term exam to determine their grasp of the cognitive knowledge required for television production. During the term, each student was asked to produce small productions, e.g., a sixty-second commercial, and each was graded on his overall capacity as producer. The final production was given a total grade and each member of the production group was given the same grade. In this way, the importance of group cooperation and active participation in television production was reinforced. Some TR Department instructors also administered a final exam to test cognitive learning.

The Department of Television and Radio perceived several problems with the existing system:

1. There was no standard measure of the student's entry behavior.
2. Previous mid-term and final examinations revealed that most students had a reasonable grasp of the cognitive knowledge necessary to function adequately in a television studio by the end of the course. However, there was no assurance that they had this knowledge by the time the production exercises began in order to make these exercises most meaningful.

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4. There was no standard measure of what the students had learned during their introduction to television production, which would provide data for course revision or longitudinal comparative studies.

<u>What was desired</u> by the Department of Television and Radio was a more effective and more efficient method of introduction to television production for students in its basic television production course.

The new method would include:

1. Measuring of entry behavior.

2. All students would acquire acceptable basic cognitive knowledge regarding television production before starting the production phase of the course. The introduction, therefore, should be capable of being used as a separate unit or incorporated as the primary sequence of the basic television production course (TR 202).

3. Provision for remedial help for students who (according to cognitive tests) either need or desire special attention.

4. A standardized, validated post-test of cognitive knowledge.

The problem, then, as defined by the Department of Television and Radio--or "what is" as compared to "what is desired"--

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Function 2: ANALYZE THE SETTING

In Function 2 of the NSMI model (Analyze the Setting), the instructional developers locate and collect relevant information on the instructional setting as it relates to the problem stated in Function 1 in the audience, conditions and relevant resources.

For the Department of Television and Radio, the above function required that the project developers identify their target audience; collect materials which would represent the previous method of instruction in the introduction to television production course; examine the available facilities for teaching that unit; and identify the resources for both the development of a new instructional unit and its eventual implementation. Of all the steps in the project, "Analyzing the Setting" covered the longest span of time. This function was initiated in conjunction with the problem identification and management organization stages and was continued up to the implementation process.

The target audience was generally defined as university students prior to their enrollment in a television production course. This definition was further refined to a statement of required entry behavior: "The learner will be a university student whose basic reading and comprehension skills have been deemed acceptable by the entrance examinations

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given by Michigan State University. The learners will have completed, or presently be enrolled in, the basic radio production course offered by the Department of Television and Radio. No previous knowledge of television production is required. The student will be pre-tested upon entry into the introduction to television production unit."

To determine how this unit had been taught, the project developers collected, reviewed and analyzed course syllabi, tests, handouts, bibliographies, and the required course text.

The facilities available to teach the unit were those available to the existing television production course (TR 202): two studios at ITV, and one studio at WMSB. No additional studios containing television equipment could be made available. The Department of Television and Radio had access to a large unequipped room located in the same building as the departmental offices which might be converted into an experimental television studio/classroom. During the development of the project, the Instructional Television Services donated some discarded equipment to the TR Department. These new acquisitions created a possibility for including a student-paced, hands-on experience component into the new introductory unit. Unfortunately, the Department was unable to obtain the funds necessary to add additional required equipment or to pay for the services of an engineer to make the donated equipment operable. It was this possibility of additional resources, h

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The expertise needed to help develop and implement a new unit of instruction was located and individual commitments to participate were assured. These human resources included learning psychologists, television subject matter experts, media experts, and instructional developers. Funds were requested and subsequently granted from the University in order to start the project. Additional funding for the purchase of new recording and playback equipment was denied. Thus, the project ultimately concluded with the same amount of physical resources available to the Department as when it started. Several times during the development of the project it appeared that additional resources might become available--either immediately or in the near future. These possibilities necessitated continued reappraisal of both the setting and the developing unit.

Function 3: ORGANIZE THE MANAGEMENT

The third function of the NSMI model organizes the activities necessary for the solution of the Instructional Development problem.

During this step the project developers organized their tasks, responsibilities, and timelines. They also determined the staff and management controls which had a bearing on the defined problem.

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The chairman of the Department of Television and Radio recognized that a problem existed; he applied for a grant in order to obtain help in solving the problem; he assumed directorship responsibilities for the project; and he appointed the researcher, a doctoral candidate in the area of Instructional Development and Technology at Michigan State University, to act as project coordinator. The coordinator had received his Master's Degree from the Department of Television and Radio at M.S.U. and was then a laboratory instructor for the basic television production course. As coordinator, he was made responsible for the progress and results of the project.

A second appointed project developer was a Master's degree candidate in the Department of Television and Radio at M.S.U. who had served in the U.S. Army with American Forces Radio and Television Service as Chief of the Television Branch in Vietnam.

As the project progressed, two instructional developers from the Instructional Media Center (IMC) were asked to participate. The project director approved the use of a systems approach to attack the problem and the coordinator recommended using the NSMI nine-step model as a guide. The IMC instructional developers helped establish timelines and presented a realistic allocation of total time to be spent on each function in the model.

As neophyte instructional developers, the TR Department project developers viewed the nine steps of the model as

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being broken down into times of equal length. The IMC "professionals," however, indicated that such was not the case. The early functions of the model, they pointed out, required the greatest amount of time. This assertion proved, indeed, to be correct: the first four functions lasted approximately four school terms. (The word "approximately" is used deliberately here because instructional development functions overlap and do not develop in a strict, linear fashion. It is necessary, however, to perform the first five functions before the remaining four can be accomplished in a systematic manner.) In the early stages of development, the project developers contacted the staff at the MSU Learning Service and requested assistance in identifying objectives. A television director with knowledge of instructional development methods assisted the project during the latter half of the total time span.

Throughout the course of the project, the project developers attempted to locate a skilled writer to create any television scripts that might be needed. Few people on the MSU campus possess a script-writing skill and the person most qualified for this task was unable to obtain release time from his division to devote to the project. The writer, however, volunteered his nights and weekend time in order to aid the project.

With the exception of the writer, all project participants were identified early in the process by the project developers

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developers--even though many talents were not used until the later steps in the total instructional development process.

Function 4: IDENTIFY THE OBJECTIVES

In this step of the NSMI model, the instructional developer must identify specific terminal and enabling objectives which the learner is expected to perform.

Using data collected during the previous three functions of the model, the project developers generated a statement of objectives, and developed an instrument to measure achievement of these objectives. These activities were based upon data found in syllabi and tests for the basic television production course (TR 202) from the preceding three years. The project developers then synthesized the information which referred to the orientation or introduction to television production (including assigned readings and handout materials), and compiled test questions that related to that material.

Objectives thus began to emerge. Learning Service experts helped the developers determine what the exact objectives should be, and assisted in writing the objectives in behavioral terms.

Behavioral objectives had never been stated for TR 202. By compiling test questions designed by the three professors who had taught the course during the previous three years, the developers observed much consistency in what each professor wanted his students to learn. The developers ultimately identified over 300 objectives which encompassed the broad

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areas of TV studio, TV control room, the operation of three types of camera units, two types of pan and tilt heads, two types of camera mounts, the video switcher, television lighting, and television projection--for both still and motion pictures.

After these objectives had been defined, and the availability of physical facilities (minus and hoped-for experimental laboratory/classroom) had been determined, the project developers eliminated and/or combined many objectives to produce a total of 71. Several broad areas were eliminated because they would be more appropriately included in a regular course which involved hands-on experience. These areas were television lighting, and major portions of projection and of video switching.

As determined by the objectives the final areas of instructional concentration were: television control room and studio, with an overview of their functions and operation and the responsibilities of crew members in each area; the Sarkes Tarzian camera; one common type of cradle head; and two types of camera mounts of radically different design.

The project developers were determined that the objectives concerning equipment be quite specifically stated to employ the equipment which the students would actually use during their laboratory work at ITV. Equipment not used inside the TR Department's instructional setting could be given general treatment during the regular course.

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Instructional Unit Objectives

All of the following objectives will be accomplished according to the information provided to the student in the instructional unit (i.e., video tapes and guidebook). The student will accomplish the objectives on a "pencil and paper" test with a ninety-minute time limit, without the aid of references. All objectives refer to television production, and the equipment used for production, at the ITV studios, Michigan State University.

1. When given a description (in the form of definition, function, use, special advantage or characteristic) of each of the following items, the student will supply the correct item for each description:

   a - Camera mount
   b - Dissolve
   c - Dolly
   d - Headset (intercom)
   e - Lens turret
   f - Lighting control board/Dimmers
   g - Line monitor
   h - Locking pin on counterbalanced pedestal mount
   i - Locking ring on counterbalanced pedestal mount
   j - Multiplexer
   k - Panning
   l - Panning handle and its adjustments
   m - Pedestal type camera mount
   n - Racking
   o - Script
   p - Set-up
   q - Steer 1 function on camera mounts
   r - Steer 3 function on camera mounts
   s - Steering handle on the crank-type pedestal mount
   t - Steering wheel on the counterbalanced pedestal mount
   u - Strike
   v - Take
   w - Talent
   x - Tally lights
   y - Tilting
   z - Truck
   aa - Zoom lens

2. When presented with a graphic representation of:

   a - Sarkes Tarzian camera
   b - RCA TK 60 camera
   c - Pan and tilt (cradle) head
   d - Crank-type pedestal mount
   e - Counterbalanced pedestal mount;

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the student will correctly identify these pieces of equipment and their components.

3. The student will be able to specify the function or advantage of:

   a - Pedestal type camera mounts
   b - Zoom lens
   c - Unique zoom lens mounting on the Sarkes Tarzian camera.

4. When presented with each of the following terms in printed form, the student will write a correct definition for each:

   a - Aspect ratio
   b - Black
   c - Burn-in
   d - Cut
   e - Essential area
   f - Follow focus
   g - Image-orthicon
   h - Light level
   i - Pickup tube
   j - Pot
   k - Producer
   l - "Super"
   m - Taking position
   n - Vidicon

5. The student will list the basic members of a television production crew and a primary responsibility of each member.

6. The student will identify the common size motion picture film and common size slide used in television production; i.e., film chain.

7. The student will identify the major components found in a basic film chain.

8. The student will demonstrate his/her knowledge of how to strike a camera.

9. The student will state the name and location of the apparatus used to mount the majority of the studio production lights.

10. The student will demonstrate his/her understanding of the basic two bank video switcher by indicating on printed diagrams of the switcher the correct responses to switching commands. This will include only takes, dissolves, fades, and supers.

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11. When presented with a graphic representation, the student will identify the twelve basic hand signals employed by the floor director and state where (location in the studio) they should be given.

12. The student will demonstrate in writing his/her knowledge of how to correctly set the focus controls on the demonstration camera equipped with a zoom lens so a stationary subject will stay in focus throughout a full zoom on a stationary camera.

13. The student will demonstrate in writing his/her knowledge of how to correctly manipulate the zoom control on the demonstration camera in order to zoom in and zoom out.

14. The student will state in writing the correct direction to turn the camera focus knob on the demonstration camera in order to retain sharp focus when a subject and camera move closer together and when a subject and camera move farther apart.

15. The student will identify the two basic lens configurations demonstrated in the instructional unit.

16. The student will state what a television camera viewfinder is and where on the camera it is located.

17. The student will demonstrate in writing that he/she knows why a camera should never be aimed at a light and why it should be capped when not in use.

18. When given a graphic representation of a close-up and a wide angle shot, the student will indicate which shot was taken with a long lens and which with a short lens.

19. When given a graphic representation of objects poorly framed in a camera viewfinder, the student shall indicate the correct camera movements required to center each object in the viewfinder without changing the size of the image.

20. The student will demonstrate his/her knowledge of the correct procedure to follow when racking lenses on a television camera.

21. When given a graphic representation and a written description of the basic camera moves (i.e., truck, dolly, pan, tilt, pedestal up and down) the student will identify those moves in writing.

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22. The student will demonstrate in writing his/her knowledge of the results of having the pan and tilt head improperly adjusted, and what knobs are used to make a proper adjustment.

23. When given a graphic representation of the front of the Sarkes Tarzian camera, the student shall identify the position of the "taking lens."

24. The student will demonstrate his/her knowledge of how the picture on a TV camera viewfinder is adjusted for contrast and brightness.

All of these objectives are considered terminal performance objectives. However, they were identified and written so that they would also become enabling objectives for the hands-on experience in the existing course, TR 202, or for use later when an experimental studio/classroom becomes available for the hands-on experience.

From these objectives, a performance measure in the form of a 152-item "fill-in" test was developed to evaluate the learners' performance (Appendix A). The test requires 144 responses which relate directly to the objectives. This could be called the "need to know" information. An additional eight responses--all definitions for terms which are listed--are material which could be categorized as "nice to know" information. Whenever possible, questions that had been asked in departmental tests during the previous three years were included. Most of the questions required minor rewriting to remove ambiguities, but the project developers recognized that many of the questions, designed by TR Department subject matter experts, had a history of success.

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Many additional questions had to be written: the first test which the project developers designed contained 115 items. It was administered to all TR 202 students during the Fall term. Test results revealed that some items were still amgibuous while others were simply not valid. Still others were not precise enough to measure attainment of the objectives. The invalid questions--and those which the developers found had missed the objectives--were eliminated. Those containing mere ambiguities were rewritten. Additional questions were designed to further ensure measurement of the terminal performance objectives when such was in doubt. The revised "final" items were tested on a small group of the Winter Term TR 202 students.

Function 5: SPECIFY THE METHODS

In this step of the NSMI model, the instructional developer determines which available strategies, materials and resources will maximize learning of a specific objective for a particular content, learner and type of learning.

The project developers of the Department of Television and Radio determined that the following methods would best enable students to achieve the stated terminal performance objectives: a printed guidebook, videotape recordings, and a pre-test. The same instrument would be used as both a pre-test and a post-test (Appendix A). The project developers could thus have a true measure of how many terminal objectives the student could achieve before starting any course work i.e., mea

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(i.e., measured entry behavior). The test would also indicate to the student what knowledge he should have and what behavior was expected when he finished the course.

Very early in the development of the project, the project director expressed the concern that the department was not using television to teach television. The project developers shared this concern and began to consider television as the possible tool for any mediated introduction that might be developed. Other types of media were also considered and evaluated at this time. Because modeling was determined as the only appropriate method to demonstrate such visual processes as, for example, camera unit operation, motion would be a necessary element in the media demonstrations. Thus, modeling indicated the use of either film or video tape. It was possible to produce the original in either the film or video tape format and then transfer it to the other medium for playback. Film can be transferred to video tape and vice-versa. Detailed investigation ultimately revealed that the film medium would prove to be too expensive. Video tape production and playback was thus chosen as the primary method to maximize the learning of terminal performance objectives. In instances where use of a television camera was either impractical or impossible, and where motion was not considered intrinsic to the demonstration of a particular television production procedure, 35mm slides were to be shot for insertion into the video tape recording (Appendices B-G).

During the production of the prototype and after its evaluation, the project developers determined that some information could be conveyed more effectively and more efficiently through the print medium. Therefore, a guidebook was designed to accompany and augment the other visual media (Appendix H). The guidebook reinforced material presented in the video tapes and, thus enabled much of the tapes' redundancy to be removed. The guidebook also became an excellent vehicle in which to include supportive material that was not directly concerned with the objectives--that is "nice to know" as opposed to "need to know" material. Finally, the guidebook was used to spell out the purpose of the introductory unit.

The two basic components of the instruction unit, then, were video tapes and a printed guidebook. The content of the video taped portion was broken down to six main sections: control room, studio, Sarkes Tarzian camera, crank type pedestal mount and the counter balanced pedestal mount.

<u>Tape I: "Control Room" (Appendix B)</u>

An on-camera narrator opened the first video tape segment. The narrator explained the purpose of the tapes and told the audience what they were expected to know after they had seen the tapes. The narrator's voice was then used throughout this and subsequent tapes when he was not actually on-camera. Still pictures were used because of the difficulty of locating a television camera or cameras in the small confines of the control room. This section was designed to familiarize students with the television control room and to define the duties of the basic crew that operates in this environment. Orientation shots showing each crew member and close-ups of the equipment operated by that crew member were shown. The title of each crew position and the name of all equipment illustrated was superimposed over the appropriate visualization. The primary responsibilities of each crew member were also discussed. The narrator was again on-camera at the conclusion of the segment and reviewed the names of the basic control room crew. The names of the crew were supered as they were mentioned by the narrator.

Tape II: "Television Studio" (Appendix C)

In this second tape, the narrator took the audience on a brief tour of the studio introducing the basic crew members who work primarily in this area. Again orientation shots of crew members and their equipment were used, followed by close-ups of the equipment. The titles of the crew and equipment were superimposed over the appropriate picture as each was introduced. The primary responsibilities of each crew member was also discussed.

During the part of the segment dealing with the Floor Director, the Floor Director demonstrated television hand signals to a camera with a subjective view from the position of the supposed recipient of the hand signals or cues. The narrator, while on camera, closed the segment with a recap of the crew positions with the names of each being superimposed over the final scene.

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Tape III: "Sarkes Tarzian Camera" (Appendix D)

The narrator introduced the Sarkes Tarzian camera and then was followed to an area of the set designated as back-stage. (The back of flats, a ladder, and some lighting equipment were located here to give a backstage flavor.)

A cameraman then actually demonstrated the use of the camera as described by the narrator. Supers and close-ups were used as each component of the camera was demonstrated. Subjective and objective camera views were used throughout this segment. The objective camera was used to show what a cameraman does and then the subjective view was used to show what a cameraman sees as he performs various functions. For example, in racking lenses the objective camera showed how the cameraman accomplishes this function and what happens to the turret as its racked. The subjective camera then showed what the effect of various lens lengths was as seen by the cameraman in his viewfinder.

A demonstration of focus and of zoom lens control utilized both subjective and objective views at once. A special effects split screen was used to accomplish this. In the case of the zoom control the lower half of the screen showed a close-up of the cameraman's hands manipulating the zoom control and the upper half contained the results of that manipulation, i.e., zoom in and zoom out.

This tape segment is the longest of the six (00:14:22), and was divided into two parts. The first part dealt with a camera eq

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camera equipped with only standard lenses, while part two covered the same type of camera equipped with a zoom lens.

Tape IV: "Pan and Tilt Head" (Appendix E)

Tape segment IV was the only segment to utilize humor that did not relate directly to the content. This was done to provide a change of pace from the straight instruction. A set with trees was used and the narrator slipped into the set wearing a pith helmet and did a brief white hunter bit with a British accent. Cartoon type signs of "Pan Right," "Pan Left," "Tilt Up," and "Tilt Down," were attached to the trees and the taking camera executed the various moves ending up on the appropriate sign, e.g., the camera panned right to the "pan right" sign.

The rest of the tape concerned itself with a demonstration of the pan and tilt head using close-ups, supers, and both subjective and objective camera views to demonstrate this piece of equipment and the results of the camera moves possible with it.

Tape V: "Crank-Type Pedestal Mount" (Appendix F)

In this fifth segment, a cameraman demonstrated how to operate this type mount and again close-ups and supers were used to isolate and label the various components of the mount. A mount was turned on its side so the underside of the base was facing the taking camera. Steer 1 (one wheel being controlled by the steering handle so the base turns like a tricycle) and Steer 3 (all three wheels controlled by the steering

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steering handle) were demonstrated from this position. Both Steer 1 and Steer 3 were then demonstrated with an upright base to illustrate the use of these two functions.

Trucking and dollying were demonstrated with the subjective camera to illustrate the effects of both moves, and with an objective camera to demonstrate how the moves are accomplished.

Tape VI: "Counterbalanced Pedestal Mount (Appendix G)

The Counterbalanced Pedestal Mount was demonstrated in much the same manner as the Crank-Type in Tape V. Attention was paid here to components that were different from the crank-type. Steer 1 and Steer 3 were demonstrated with an upright mount and the underside of the mount was not shown. Trucks and dollies were demonstrated from an objective view and the subjective view was not used.

The Guidebook (Appendix H)

The guidebook was designed in almost outline form. The text was very brief and illustrations simple. It was intended to be a quick reference after the student had seen the material on the video tape--not to be used by itself. An example of this were the directions to focus a camera. This example included a drawing of a camera in front of a person with arrows indicating the two coming closer together. Over the focus knob on the camera was an arrow pointing in the direction the knob should be turned when the distance between camera and subject decreases. The same type of illustration was used f

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was used for the reverse situation. The guidebook also included a brief explanation of the switcher, threading diagrams for two film chain projectors used by students, a sample script, and a glossary of 83 common television terms.

Function 6: CONSTRUCT PROTOTYPES

This function stresses the design and production of all materials to be used in an instructional package. Designs are completed for tryout and evaluation.

As discussed in Function 4, "Identify the Objectives," the first prototypes tested were the pre- and post-tests. With the decision made to use video taped demonstrations as the method of learning/teaching, the project developers next faced the task of preparing scripts. The developers tried to locate an individual who was an experienced and capable instructional media scriptwriter, and the person most qualified was a film writer/director attached to the Film Production Division of the MSU Instructional Media Center. Ultimately, however, the projected charge for the services of the writer was discovered to be far in excess of any amount the Department of Television and Radio could pay.

Faced with the scarcity of funds to employ outside talent, the project developers proceeded to write the scripts themselves. The coordinator assigned the majority of this task to his co-developer after both had authored the script contents and determined the sequence of information presentation. These activities alone were a time-consuming task.

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The coordinator insisted that the scripts be "overwritten" to include, in other words, an over-abundance of material which could later be deleted. Later developments indicated that this was a time-consuming mistake. During try-out stages, the developers discovered that it was possible to tell when students had too little information to achieve an objective, but that it was difficult to determine when they had <u>too much</u>. The script-writing phase began during Spring Term, 1971, and continued until early Winter Term, 1972, when production began.

During the later stages of the project, the film writer devoted many hours of his own time, at night and on weekends, to finishing and "polishing" the video tape scripts. The Film Production Division was able to provide some release time to the writer so that he could also act as narrator during the production of the videotapes.

The television director became actively involved in the project during Fall Term, 1972. He was well versed in instructional development techniques and was therefore valuable not only as a subject matter and media expert, but as an instructional developer as well.

The coordinator was very hesitant to commit the scripts to a video tape prototype for fear that the prototype would be inserted into the instructional process and thus never be revised. Because of this concern, long hours were spent outside the studio revising scripts rather than products.

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A prototype tape (which was more like a rehearsal tape) was finally recorded. The tape, produced during the first half of Winter Term, 1972, used three different off-camera narrators and no visual superimpositions of television terminology as they occurred in the narration. The prototype material focused solely on the camera unit material since, in the judgment of the project developers and the television director, this material would be the most difficult for students to master and would thus provide the information needed for anticipated script and production revisions.

The guidebook was in rough form at this time but was not developed into a prototype. The project developers decided that its content would ultimately be determined by what was included in the final version of the video tapes.

Function 7: TEST PROTOTYPES

In this step, the instructional prototypes are tried out with a representative sample of the student audience and evaluation data is collected and recorded.

The prototype video tapes, entitled "Television Program Development," were shown during Winter Term, 1972, to a class of approximately 50 students. This course is designed for students who are not Television and Radio majors and who desire a working knowledge of the medium for application in other fields. The class had expressed a desire to learn about television equipment operation but they had spent no class time in a studio.

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In addition to these non-majors, the prototype viewing and testing session was attended by the following: two students who had taken the basic television production course (TR 202) during the time the project coordinator was a laboratory instructor, the scriptwriter from the IMC Film Production Division, an individual experienced in Instructional Television who had trained people in the use of television equipment, a former member of the CBS News staff and the White House Communications Agency, and the project director who was the instructor in the class being tested.

The prototype videotape was shown to the class via the University's closed-circuit system and viewed on two monitors located in the front of the room. After the viewing, a test on the videotape material was administered to the class and subsequently graded by them. This test was comprised of questions dealing with information presented on the prototype tape and abstracted from the previously designed test (Appendix A).

The students achieved very low scores on the test. The following is a compilation of the most common and most <u>relevant</u> comments or questions relating to the prototype from both the class and the attending experts:

"I couldn't see what was going on."

[common from those seated in the rear half of the room.]

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"It was too repetitious."

"I wanted to see someone talking to me."

"With just the voice in the background [i.e., voice-over] it was too 'Dragnetey'."

"I couldn't understand what some of the terms were. Couldn't you take a picture of the words on terms?"

[No supers were used]

"It was too long" [38 minutes]

"The section on headsets was too long in relation to its importance, and was still difficult to understand."

"The part on 'steer one' and 'steer three' was long, confusing, and I still don't understand what they were or what happened when they were used."

[This refers to an adjustment on both pedestal mounts which allows either one wheel or all three wheels to be used in steering the camera mount.]

"The production looked crude and sloppy."

The next tryout of the prototype was done with three volunteers from the basic Radio production course, Winter Term, 1972. These students viewed the tapes in a studio at ITV with the equipment illustrated in the tapes on display in the studio. The tape was played back in segments and a technique used and defined by Abedor as "debriefing" was employed. Abedor (1971, p. 10) defines debriefing as a ...

> ... formalized procedure where through face-to-face interaction the prototype lesson author obtains information from students on lesson deficiencies and how to remediate these deficiencies.

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Both project developers, the project director, and the television director made up the evaluation team during this second tryout and debriefing session.

After each segment of the video tape was viewed (e.g., Pan and Tilt Head), the students were asked questions verbally rather than taking the printed test. In addition to asking them questions (the same as those on the printed test), they were asked to operate the piece of equipment or component (e.g., camera focus) that had just been demonstrated on the tape. After completing the two functions, the students were asked to offer subjective comments on any aspects of the tapes they had viewed. When very little in the way of comments from the students was forthcoming, they were asked specifically about production values, clarity of information, and the amount of redundancy. The students responded intelligently on the verbal test and ably performed the tasks that were demonstrated on the tapes. Their most relevant comments and questions were:

"Parts of the tapes are boring."

"Too much repetition."

"I would like to see the unfamiliar terms printed and appear on the screen when the term is mentioned." [Supers over the pictures]

"... felt the program was very cold and would have liked to have seen someone on the screen talking to me."

"... don't understand exactly how steer 1 and steer 3 work."

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"The part about the headsets was too long and involved."

"... liked the way one idea built on another. It made sense."

"Everything except the steer 1-steer 3 thing was very clear and easy to see and understand."

"All the voices on the tape were rather dull ... not very lively.

"... needs some humor to liven it up."

[The instruction] ... "was too serious."

"... tend to lose attention when things are repeated so often."

When asked if they would prefer to see the tapes alone and not as a group, the students all responded "No." When asked about an optimum viewing group size, by concensus, they decided on between eight and twelve students. The students preferred group-viewing because they could talk to each other about what they had just seen. A group larger than twelve, they felt, would inhibit the asking of questions, even of each other. Finally, the students felt that people farthest away from the television receiver would have difficulty seeing, particularly if the group was larger than twelve. The most rewarding comment heard by the evaluation team, expressed in a variety of ways, was that the students were extremely pleased that the Department of Television and Radio had the amount of dedication necessary to try to improve instruction. They gladly endorsed the Department involving students in the process. All three stated they had

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had never seen evidence of instructional improvement in any other course they had taken.

Function 8: ANALYZE RESULTS

This step requires analyzing and interpreting data from the tryout and all previous Instructional Development functions such as the objectives, methods and evaluation techniques.

The evaluation team consisted of the project director, the television director, the project coordinator, and the other project developer. Analyzing the data gathered from both tryout groups, this team arrived at the following conclusions:

1. The prototype tapes could not be used in their existing form.
2. The presented material needed to be divided into smaller independent sections.
3. An on-camera narrator should be used whenever there was instruction with no accompanying demonstration. This person should be a professional.
4. A guidebook should accompany the videotapes. This guidebook should be brief and concise as possible. It should not be designed to be used alone or to replace a text, but rather to reinforce and supplement the information contained in the tapes. It should also contain information that could be more effectively handled in print than by television.

It should contain both a glossary and an explanation of the purpose of the new instructional unit. Finally, the guidebook should contain a diagram of an overall television system, a sample script, and a threading diagram for projectors.

5. Most of the redundancy in the video tapes should be removed, and the necessary reinforcement included in the guidebook.
6. Information on how headsets are plugged into cameras should be included in the guidebook.
7. The videotape production itself must look as professional as possible in order to show new television students good examples of instruction by this medium. Aside from the actual instruction designed in the tape (i.e., the stated objectives), the tapes should be a good example of how to use television and its various techniques and effects from opening titles to closing credits.
8. The tapes should include a human element and some humor, if possible. The on-camera narrator should help in both of these areas.
9. The Steer-1 and Steer-3 functions should either be made clearer on the tapes or eliminated completely. If used, an illustrated description of the functions should be included in the guidebook.
10. Superimpositions should be used for all new terms (i.e., TV jargon).

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11. The presentation should be designed to be viewed by approximately twelve students per monitor.
12. The unit should be designed to be used either as a separate unit or as the introductory part of TR 202.
13. The unit should be designed so that only demonstrations of hands-on objectives need be added, thus enabling the unit to be used in a hands-on laboratory setting.
14. By using data gathered through production of the prototype, it would be safe to include the material previously omitted in that tape (the television studio and television control room) in the re-shooting of the revised tapes.

Function 9: IMPLEMENT/RECYCLE

The final step in the NSMI model requires a review of the Instructional Development Process resulting in a decision to implement the project as designed on a full scale or to return to previous functions for revision and modification purposes.

The project developers made the decision in Function 8 to recycle. A guidebook was designed and the prototype scripts were rewritten to accommodate all of the conclusions arrived at in Function 8. The final shooting scripts (Appendices B-G) were designed as individual units. Although each unit built on information provided in the previous unit, each had to have the capability of standing alone. The

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The information content was divided into six parts, each with its own script. These parts were:

1. The Television Control Room (Appendix B).
2. The Television Studio (Appendix C).
3. The Sarkes Tarzian Camera (Appendix D).
4. The Pan and Tilt Head (Appendix E).
5. The Crank Type Pedestal Mount (Appendix F).
6. The Counterbalanced Pedestal Mount (Appendix G).

Each script was printed on a different color paper. This technique proved to be a helpful production aid since, in many cases, portions of several scripts were being recorded during a single taping session. It was far easier to locate a script by color rather than by title. The final tapes (second prototype) were produced during the latter part of Winter Term, 1972, and the early part of Spring Term, 1972. The narrator was granted release time from the Instructional Media Center to participate in the production. Because his availability was limited and allocated into blocks of four hours, all scenes requiring an on-camera narrator were shot during these available times and later edited into the production. The off-camera or "voice-over" portions of the scripts were recorded separately and on the narrator's own time. The television director likewise devoted many hours of his own time to the completion of the project.

The guidebook was designed and developed by the project coordinator. Illustrations were rendered by the Assistant

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Director for Instructional Development at the Instructional Media Center.

Students enrolled in the basic television production course and the basic radio production course, Spring Term, 1972, were used as the subjects for experimental testing and evaluation of this second prototype of the instructional unit.

That evaluation forms the basis of this study, and results therefrom will help determine whether or not the instructional unit will be integrated into the curriculum of the Department of Television and Radio.

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CHAPTER III

REVIEW OF INSTRUCTIONAL TELEVISION LITERATURE

Introduction

> Television is already probably one of the most extensively tested instructional devices ever offered to education.
>
> --John W. Meany, 1962, p. 31.

Meany could have made the above statement in 1962 even without the two qualifiers. Certainly, ten years later, it is even more true. As a method of instruction, television has indeed been extensively tested and reported. Volumes could be (and have been) written on reviews of the literature alone. However, a review of a small portion of the vast amount of literature available on the subject is appropriate for this study. The medium used in the instructional unit being evaluated is television, and the department for which the materials were designed is the Department of Television and Radio. It will be the purpose here to present, in a somewhat chronological fashion, a review of some of the instructional television research material examined during the development of the instructional unit. A review of systems literature was presented in Chapter II.

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Why was television selected as the medium? What can it do? The following excerpt from the report of a Leadership Seminar on the Role of Television in Instruction sponsored by the National Education Association lists some of the important advantages (1958, pp. 8, 11-14).

> Technically--Television can offer certain unique experiences which have not otherwise been available in the schools. It can also extend certain other valuable experiences which have been available only to a few. Sound and picture can be transmitted simultaneously as they are created. Almost anything that can be seen and heard can be presented on the television screen. In technique, television is intimate; in area coverage, it is instantaneous. From the viewer's vantage point, it is mobile; it can move in for a closer look, swing around for a better look, back away for a broader look. These are some of the unique technical advantages of the medium.
>
> Providing motivation and stimulation--Television can be used effectively to transmit experiences often novel to the classroom, which can be highly stimulating both to teachers and pupils.
>
> Developing attitudes--Because of its immediacy and its personal quality, television can be particularly valuable in providing concrete experiences which will help to mold constructive attitudes.
>
> Developing intellectual skills--Television can serve as one means of helping pupils learn to analyze component parts of a problem and understand the steps of problem-solving.
>
> Demonstrating processes--Through its ability to provide close-ups and to focus on step-by-step procedures, television may be used with success in demonstrations.
>
> Thus in some instances, television can be used as a substitute for a field trip; in others as a means of accommodating large numbers of pupils, or in still others as a way to bring unavailable experiences into the school. Employed in such fashion, television can effectively supplement the field trip program and can narrow the gap between first-hand and vicarious experience. But it cannot entirely eliminate the need for direct learning experiences through field trips and in the laboratory.

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These advantages indicate that television has definite value as an educational medium.

Instructional Film Research

The antecedent research to television was film research because motion pictures and television share similar characteristics. Among these are: motion, synchronous sound, ability to achieve close-ups, and superimposition of titles.

One of the present advantages of film over television is its ability to project a larger, clearer image more economically. However, Chu and Schramm (1967, p. 7) concluded:

> There appears to be little if any difference between learning from television and learning from film, if the two media are used the same way.

Similar conclusions were reached by Jackson (1952) and by Hurst (1955).

In 1951, Hoban and Van Ormer (1951, pp. 9-1, 9-2) concluded:

(quoted in part)

1. People learn from films.
2. When effective and appropriate films are properly used, people learn more in less time and are better able to retain what they have learned.
3. Instructional films may stimulate other learning activities.
4. Certain films may facilitate thinking and problem solving.
5. Appropriate films are equivalent to at least an average teacher and sometimes even to an excellent instructor insofar as the instructor's function is communicating the facts or demonstrating the procedures.

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From their research, Hoban and Van Ormer developed ten principles regarding the influence of instructional films on certain behavior, and the reactions learners will have toward certain techniques. In part, the principles are (pp. 9-3 to 9-8):

1. PRINCIPLE OF REINFORCEMENT:
Films have greatest influence when their content reinforces and extends previous knowledge, attitudes, and motivations of the audience. They have least influence when previous knowledge is inadequate, and when their content is antagonistic or contrary to the existing attitudes and motivation of the audience.

2. PRINCIPLE OF SPECIFICITY:
The influence of a motion picture is more specific than general.

3. PRINCIPLE OF RELEVANCE:
The influence of a motion picture is greater when the content of the film is directly relevant to the audience reaction that it is intended to influence.

4. PRINCIPLE OF AUDIENCE VARIABILITY:
Reactions to a motion picture vary with most or all of the following factors: film literacy, abstract intelligency, formal education, age, sex, previous experience with the subject, and prejudice or predisposition toward the subject.

5. PRINCIPLE OF VISUAL PRIMACY:
The influence of a motion picture is primarily in the strength of the visual presentation, and secondarily, in the narration or commentary. It is relatively unaffected by "slickness" of production as long as meaning is clear.

6. PRINCIPLE OF PICTORIAL CONTENT:
An audience responds selectively to motion pictures, reacting to those things which it finds familiar and significant in the pictorial context in which the action takes place.

7. PRINCIPLE OF SUBJECTIVITY:
Individuals respond to a motion picture most efficiently when the pictorial content is subjective for them.

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8. PRINCIPLE OF RATE OF DEVELOPMENT:
Rate of development influences the instructional impact of a picture on its audience.

9. PRINCIPLE OF INSTRUCTIONAL VARIABLES:
Established instructional techniques, properly built into the film or applied by the instructor, substantially increase the instructional effectiveness of a film.

10. PRINCIPLE OF INSTRUCTOR LEADERSHIP:
The leadership qualities of the instructor affect the efficiency with which his class will learn from the film or filmstrip.

These same principles or findings began to emerge later in television research.

Hoban and Van Ormer (1951, pp. 9-8, 9-9) also reported four conclusions concerning the influence motion pictures have on learning, as well as how to improve both the quality and the use of films in an instructional setting. These conclusions, in part, were:

1. When NECESSARY and DESIRED learning is dependent upon a background of experience possessed to only a slight degree by the learner, the advantage of the film over other media, especially for rapid mass instruction, may be most evident.

2. The actual influence of a given motion picture is frequently less than its anticipated influence.

3. If motion pictures are to teach, they must be made as tools of teaching, rather than merely as examples of cinema art.

4. If the effectiveness of motion pictures in instruction is to be increased, improvement must be made by all involved, not simply by the producer.

Later in the 1950's, Schuller (1954, pp. 11-16) summarized both the research of Hoban and Van Ormer as well as that of Arnspiger, Dale, Knowlton and Tilton, Roulon, Wise, and

Wittich and Fowlkes. Based on that summary his conclusions were:

> 1. Films are effective in conveying factual information.
>
> 2. Films significantly aid the pupil in understanding information.
>
> 3. Films increase retention of knowledge.
>
> 4. Methods of using films substantially affect learning results achieved through their use.... The evidence strongly indicates that the following techniques, if properly applied, significantly increase learning from films.
>
> a. Orienting the group on what it is going to see and/or summarizing what it has seen.
> b. Announcing that a check-up or test on learning will be given after a film.
> c. Reviewing the important points (with variation) within the film and/or showing the film, in part or as a whole, more than once.
> d. Carrying on group participation of some kind during or after a film showing.
> e. Informing the learner of how much he has learned. Giving test results or answers or making applications as soon as possible.

By the latter half of the fifties television was well underway in generating its own research.

Instructional Television Research

Carpenter (1955, p. 607) reported that the United States Navy was the first official body to conduct research into the new medium. This research was accomplished in 1946 by the United States Navy Special Devices Center. The early research was directed toward equipment development to determine how such equipment could be used to solve practical problems

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problems. This emphasis by the Navy (and other military services) on the practical applications shifted to the theoretical by 1949 (Dunham, 1958). The interest of the services at this time also became more oriented toward determining the effects of television on military training. The Navy continued to be most active in research and began issuing its findings in various reports (United States Navy, Human Engineering [nd])

> 80 percent of comparisons showed television as good or better than local instructors (p. 15).
>
> 75 percent of comparisons showed [television] recordings as good or better than local instructors (p. 16).
>
> 84 percent of comparisons showed [television] recordings as good as television (p. 17).

This Navy research also investigated other variables within a television program. Some of the variables were production values such as the narrator and visual aids. It was concluded that an on-camera narrator was better than only voice-over (p. 21); that the narrator should be free of speech problems or annoying mannerisms (p. 22); and that programs needed more and better visuals (p. 21).

The University of Kansas Medical School was one of the earliest educational institutions to use television. The medical school started experimenting with closed-circuit television in 1949 (Schafer, 1953). By 1950, education was well into the use of television and television research. These efforts were made possible due, in large part, to help from pri

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from private foundations. The Ford Foundation is an excellent example. In 1952, findings from these projects began to be displayed. Conrad (1952) reported on a special one-day project involving thirteen public schools. Eight televised lessons were broadcast between monring and mid-afternoon. Involved in the evaluation were participating teachers (60), participating students (1,650), other visiting educators, and the investigators' staff. Conrad claims that a number of conclusions could be made from the evaluation:

1. Television is most effective when it brings experience, materials, and demonstrations that are not otherwise readily available to the student.

2. The television host, teacher, or narrator must possess enthusiasm, a knowledge of teaching principles, and "special qualities of voice and manner."

3. Teachers should be program planners.

4. The amount of information in each program should be limited.

5. Preparation by the classroom teacher before a televised program is always desirable.

6. A twenty- to thirty-minute program fits into the normal class time and allows enough time for discussion.

Wischner and Scheier (1955, p. 613) reviewed the available literature and concluded that television <u>can</u> teach. They also stated that more research was needed in order to answer questions about factors affecting the effectiveness of televised instructors.

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In order to compare the effectiveness of televised instruction to that of regular classroom instruction, the Quartermaster Training Command (1954) conducted research using ROTC students. When completed, the study concluded that the effectiveness of instruction by television seemed to be equal to classroom methods. This conclusion was based on immediate learning of facts. Another conclusion of this same study stresses the need for instructors to know the simple but important techniques and differences in instructing by television. That is, instructors must learn to use the medium.

The question of whether or not television could teach a skill began receiving attention by 1954. A military research project reported by Kanner, Runyon, and Desiderato (1954) concluded that Army trainees receiving instruction by television did significantly better in performance tests of machine gun operation and map reading than did trainees in a lecture-type class.

Another study, reported by Pasewark in 1956, showed that television could teach psychomotor skills. One of the dependent variables in this study was a timed typing test at the end of the course. The results of this study revealed that students who received televised instruction for beginning typing demonstrated significantly faster typing speeds than those receiving conventional instruction.

At the end of the decade, Holmes (1959) made a review of television research. His research concluded that students can dev

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can develop psychomotor skills as efficiently from television as from conventional instruction.

Research by professional educators, and by the military, continued throughout the fifties with results showing that television could teach as effectively as conventional methods. Much of the research, however, went unnoticed because there was no systematic compilation of the research data. In 1956, Kumata produced just such a compendium. He concluded that the total research indicated no significant difference between the achievement of students taught by television and those taught by conventional means. Kumata said, however, that the lack of significant difference was usually found after short-term retention tests dealing with subject matter.

The area of students' attitudes toward televised instruction received more attention late in the fifties. Macomber, Siegel, Hathaway, and Dome (1957) reported that most students tended to favor conventional instructors over instruction by television. Carpenter and Greenhill (1958), and Macomber and Siegel (1960), also obtained results indicating students' preference for conventional instruction. Evans (1956) reported that the students' opinion of televised instruction became more positive after they had been exposed to it. That is, students had a more negative attitude toward televised instruction before they actually experienced it. Tannenbaum (1956) and Carpenter and Greenhill (1958) came to the same conclusion.

As more and more research reported that television could teach only as effectively as conventional means (i.e., no significant difference), this very lack of difference was being questioned and examined. Greenhill (1959) proposed that no significant difference was found in the majority of studies because most studies were single variable research. Greenhill stated (p. 253):

> ... the effects of most single variables are too small to have any marked influence in learning.

In Holmes' 1959 compendium of research findings, the conclusions were much the same as those arrived at by Kumata three years earlier. Holmes believed that much had been learned about televised instruction, but that there was a great deal yet to discover. Holmes (1959, p. 80) felt there were three needs of television research which had yet to be resolved:

> First, there is a need for an accepted system of correlating results based on common definitions and explicit terminology.
>
> Second, there is a need for more accurate and sensitive instruments and criteria for measuring learning.
>
> Third, there is a need for greater attention to and evaluation of learning from visual material.

The decade of 1950 to 1959 ended with another overview of television research by Kumata (1960, pp. 176-199). This review encompassed the last half of the decade, and was a comparison of his own earlier findings in 1956. Kumata found that an increasing number of studies conducted at the elementary and high school level resulted in a significant difference in learning by students taught by television. The majority of research, however, continued to show no significant difference between conventional and televised instruction.

Kumata suggested the research does show the following factors (among others) to be important to the success of instruction by television:

1. Motivation--Often television was judged superior over conventional instruction when the television subjects were volunteers, as opposed to being conscripted.
2. Subject matter preparation and integration--In most cases, when television is reported as superior to conventional instruction, there has been subject-matter preparation, and the televised instruction has been well integrated into the teaching process.

Both the military and the professional educators had completed and reported a vast amount of research concerning television in the teaching-learning process. Systematic reviews of the literature were now available, but there appears to have been little cross-pollination between military and civilian research groups.

Allen (1958, p. 8), in reviewing and compiling military research on television, concluded that universities ignored the military research for the most part. Much of the early research pioneered by the military was, in many respects, more comprehensive and more significant than that conducted later by the universities. It was Allen's opinion that educators tended to avoid using military research because they were reluctant to equate military training with education. Schramm (1961, p. 216) nevertheless reported that, for both military and civilian research, findings of no significant difference still dominated the research.

In 1960 Foshay (pp. 234-237) described research in instructional television as developing in three stages:

> Stage 1. The Exhortatory Stage (1945-50). Educators and broadcasters declared to all "the importance of television, the possibilities of the medium, the necessity for careful inquiry, and the need for fitting it into the existing educational scheme."
>
> Stage 2. The Promotional Stage During this stage research is conducted to demonstrate the effectiveness of television. "Research in this field will not come of age until the special characteristics of this medium are examined closely."
>
> Stage 3. Unnamed and only beginning to emerge, Foshay described this stage as one where television research and communication theory are being applied to the problems being investigated.

Research in the sixties continued as before, with the dependent variable being student achievement, and no significant difference being reported most often as a result. However, some of the research, demonstrations, and tryouts involved much larger samples than previously reported, with some taking place over a longer period of time. Some research also tried to determine the effect of certain production values within a televised lesson while others demonstrated unique applications of television.

Still other research asked questions regarding television's ability to instruct students in problem solving and information synthesizing. Macomber and Siegel (1960) reported the results of such a study conducted at Miami University over a period of four years. Here, the achievement of large television groups was as great as that of small conventional groups. The achievement measured was the ability to solve problems and to synthesize information.

The Ford Foundation (1961) reported on a nationwide experiment which dealt with using television to teach. The program had started in 1957 with nearly 40,000 students and more than 200 elementary and secondary schools participating. By 1960, these figures had risen to nearly 200,000 students and almost 800 schools participating. During the first two years of the project, 251 comparisons that were thought to be legitimate were made between television students and conventional students. Of these comparisons, 165 favored television students, and 86 favored the conventional students. However, only 90 of these comparisons showed a difference that was statistically significant, with 69 favoring television students and 21 favoring conventionally taught students.

The largest experiment in one particular area was the Hagerstown, Maryland project. This effort was started in 1956, and, by 1960, 16,500 students were receiving televised instruction (Hagerstown Board of Education, 1959) (Ford Foundation, 1961). Early comparisons favored the television students in several content areas.

Questions arose regarding the findings of all television research, particularly the number of studies indicating no significant difference between television groups and conventional groups. Williams (1962) questioned the advisability of accepting instructional television on the basis of no significant difference. No significant difference could be due to other interrelated factors:

First, the wide use of true-false or multiple choice tests: Williams claims these tests measure only the student's ability to recall specific information.

Second, and related to the first: concomitant learning. The tests used in most experiments do not evaluate the student's ability to apply new information to an entirely different situation.

Third, the timing of the tests and the duration of most experimentation: most of the testing is done immediately following the instruction, and comparisons are made on a short-term basis. These factors could hinder any judgments about the actual effects of televised instruction.

An innovative and productive large-group use of television was demonstrated by the Chicago City Junior College. In 1956, partially financed by the Ford Foundation, the Chicago Board of Education established a TV College. The college was intended to enable students to either complete an Associate of Arts degree entirely via television, or supplement their on-campus course work. The television medium would also offer courses to individuals not in a degree track. In 1964, the Chicago Board of Education issued a fourth report on the TV College, which contained the following statistics (p. 34):

> Over 80,000 individuals registered in over 120,000 course registrations (roughly 1.5 course registrations per individual).
>
> Over 34,000 students enrolled in over 53,000 courses for credit.
>
> An "unseen audience" soaring from 10,000 viewers per telecast in Fall 1956 to over 200,000 viewers per telecourse in 1964.
>
> Retention rate (number of students who complete a semester or trimester's work) now averaging 75%.
>
> Almost 60 different college courses offered for credit, plus 3 additional courses telecast not-for-credit. (Many of the credit courses were repeated in subsequent semesters, raising the total course offerings to almost 150.)
>
> 95 students already awarded the Associate of Arts degree (60 hours of college work of "C" or better average) entirely by TV.
>
> Over 900 students graduated with the AA degree who took, on an average, one semester of their work by TV.
>
> Concurrent registrations (students taking TV and on-campus classes in the same semester) growing from 3% in Fall, 1956, to 40% in Fall, 1962.

One of the most imaginative uses of television for this (or any) decade was that of the Midwest Program for Airborne Television Instruction, MPATI. MPATI broadcast instructional television from an airplane transmitting over a six-state area. In a speech to the National Association of Educational Broadcasters (NAEB), Jorgensen (1963, p. 20) reported that ...

> ... regularly-scheduled broadcasts to schools in a 144,000 square mile area began in 1961. [During MPATI's first year of instruction] ... about 2,300 schools and colleges equipped themselves to receive MPATI broadcasts.

Jorgensen also stated that "... an estimated one million students participated in classes using MPATI lessons." Felsenthal (1971, p. 39) states that "Thirty percent of the original lessons were rejected and revisions of them were ordered." He concludes that this insistence on high standards, and revisions if the standards were not met, was a strong factor in producing the high quality of MPATI's tele-lessons. However, despite the evidence that revision produces quality, in 1967, Chu and Schramm (p. 101) were still questioning ...

> ... whether television should not adopt as a standard practice, whenever possible, the pretesting and revising of television lessons.

They concluded that ...

> ... one of the chief residues of the last ten years of activity with programmed instruction is a mountain of evidence that more effective learning experiences can be developed by testing materials on students, revising, testing again, and so on.

Despite the high quality of MPATI programs, the project had problems in attempting to become self-sufficient. Additional channels were requested in order to broaden their audience and to make scheduling more flexible. The request was denied--with the principal opposition coming from the National Association of Educational Broadcasters (Felsenthal, 1971, p. 42). Although the NAEB does not qualify for the designation "Ace," they are somewhat unique for their record of having shot down two American planes during peacetime--with an assist from the FCC. MPATI ceased transmission of airborne television in May, 1968.

The most ambitious study ever made of the research on instructional television was done by Chu and Schramm (1967). The study is extremely broad in scope as evidenced by a bibliography citing 303 titles.

The evidence from this compendium supports the results of most previous research, even as far back as the early film research: People can learn from television; and, television is most effective when the basic rules of good teaching are followed.

> Instructional television works best when it is made an integral part of instruction--that is, when it is woven into a classroom context of learning activities; ... It works best when it is planned and introduced carefully as part of a teaching-learning system, rather than a branch grafted on to what is already there. (p. 100)

The total research effort indicates that instructional television lessons should be systematically developed, and that television itself be systematically integrated into the teaching-learning process.

Hunter saw these indications in 1961 (pp. 21-22), as he was proposing a "Learning and Instructional Resources Center." This center (which would include instructional television) ". . . would serve as a focus for research in all technological development, and on the problems of more effective learning and instruction. And, it would provide the creative 'programming' required for the full realization and application of the total 'systems' concept or design."

Chu and Schramm (1967, p. 98) say it is no longer necessary to ask if students can learn from television. Overwhelming evidence shows that they can. The questions now to be asked about television are:

1. Does the situation call for it?

and,

2. How, in the given situation, can it be used effectively?

As they pertain to the problem stated in Chapter One, these two questions are to be answered as part of this study.

1. Does the situation call for <u>television</u>?

The instructional unit being evaluated was developed through use of the "systems approach" as espoused by Instructional Development (ID). Function Five of the ID model ("Specify Methods") was used to guide the development of the unit. Television was selected as the primary medium. That medium was to be supplemented by printed material. The decision to use television was made on the basis of several needs:

a. to show movement

b. to show subjective views of what a television camera 'sees' and, thus, what a student would see when operating a camera

c. to superimpose titles

d. to show various kinds of shots

e. to synchronize sound and picture

The motion picture medium could also fulfill the above-listed needs, but additional factors also had to be considered in the decision to ultimately use television as the primary medium of the instructional unit:

f. film resources not available

g. television for television students

h. inability of a film camera to accurately present what a television camera sees

i. videotape (television) playback as opposed to projected film (motion pictures)

While motion pictures and television give similar visual results (i.e., camera angles, zooms, pans, tilts, dollying and trucking), the techniques involved in achieving each of these effects are quite different.

2. In the given situation can television be used effectively?

The purpose of this study is to evaluate the effectiveness of a unit of instruction wherein television is both the subject of the instruction and the method by which the subject is to be taught.

CHAPTER IV

DESIGN OF THE STUDY

The purpose of Chapter IV is to present a description of the components of this new instructional unit. Also reported are the data collection instruments, the data collection procedures, and the type of data analysis used. The experimental design is presented and several limitations of the present research are also considered. To aid the reader, an overview will now follow rather than the usual summary at the end of the chapter.

Overview

The evaluation reported in this study was accomplished using students enrolled during Spring, 1972. The students were enrolled in two of the Television and Radio Department's courses: the basic radio production course (TR 201), and the basic television production course (TR 202). TR 201 is a prerequisite for TR 202.

To provide the data for Part One of the evaluation, students enrolled in TR 201 (radio) were randomly assigned to two groups: control and experimental. The experimental group received the complete instructional unit. The control group, however, received only the pre-test and post-test of the instructional unit at the same time as the experimental group, but they did not receive the rest of the unit.

The students which made up the conventional group consisted of one-third of the students enrolled in TR 202. The group designated as the conventional group was comprised of those students randomly assigned to the laboratory group which would receive instruction in the studio equipped with the same equipment demonstrated in the instructional unit.

The conventional group was pre-tested on the first day of regular course instruction and post-tested at the end of their first studio assignment (3 weeks). The pre- and post-test instruments were the same ones used with the experimental and control groups.

Two primary hypotheses were generated:

1. The experimental group will score significantly higher on the post-test than the control group.
2. The experimental group will score higher on the post-test than the group receiving the conventional instruction.

To determine if sex, previous experience, class standing, or status as a Television/Radio major had an effect on post-test scores of the experimental and conventional groups, a hypothesis was generated for each of those variables. All hypotheses were tested at .05 alpha level using analysis of variance.

The second part of the evaluation utilized the post-tests of both the experimental group and the conventional group. An item analysis was performed on the post-tests for each group. The index of difficulty for each test item was then compared by group.

For the third part of the evaluation, an attitude questionnaire was administered to both the experimental group and to the Department of Television and Radio faculty after both groups had been exposed to the new instructional unit. This questionnaire would help the project developers to determine the attitudes of each group toward the materials and also identify weaknesses and strengths of the instructional unit as viewed by these groups.

Sample

The subjects within this study were selected from two courses offered by the Department of Television and Radio at Michigan State University. These two courses were the basic radio production course, TR 201, and the basic television production course, TR 202. The students enrolled in the radio courses were randomly assigned to two groups by using the class list and a table of random numbers. One group was then randomly designated the experimental group and the other the control group by flipping a coin. After first arbitrarily calling one group heads and the other group tails, it was stated that the side of the coin that landed face up after the flip would be designated the experimental group.

The entire TR 201 class was comprised of 48 members on the first day of the term when the random assignment was made. However, this number was reduced due to students dropping the course or absences during the time of the experiment. Thus, at the time of the testing, there were 19 subjects in the experimental group and 17 subjects in the control group.

The TR 202 class received the introduction to television production through conventional instruction. The group used in this research project was one of three laboratory sections within the course. The conventional group was to be the laboratory section using Studio "A" at Instructional Television Services (ITV). Each laboratory group was assigned to a studio, each of which was equipped with different equipment, for approximately three weeks. The groups then rotated to a different studio. The conventional group was so specified because their particular studio was equipped with the same equipment demonstrated in the experimental instructional unit.

In order to assign students randomly to the conventional group and, therefore, to studio "A", a sheet was passed around on the first meeting of the class and the students were asked to sign their names next to one of the numbers on it. Using a table of random numbers, the number preceding each name was then randomly assigned to one of three lists which would correspond to one of the three television studios being used for the course. These three studios, two at ITV and one at the campus PBS station, WMSB, were arbitrarily designated as Studios 1, 2, and 3. Three sheets of paper, each with one group of randomly assigned numbers listed on it, were shuffled by the researcher and a naive person was asked to order them as 1, 2, and 3. This order of lists was then matched with the corresponding studios. The makeup of the three groups is contained in Table 4.1.

Instrumentation

Pre- and Post-tests

The pre-and post-tests (Appendix A) were exactly the same in content. Each had its own color cover sheet, however, and the pre-test was referred to on the cover sheet as "Test 1." The test was a "fill-in the blanks" type requiring 152 responses, each given a value of one point. The top score possible, then, was 152. Table 4.2 provides reliability, difficulty, and discrimination information on the test. These data were obtained from the post-test of both the experimental group and the conventional group. Results are provided for each group separately and for the two groups combined. The achievement on this test by both groups, plus the third control group which received no instruction in television, provided the data used for the evaluation reported in this study.

Table 4.1. Demographics of Experimental, Control and Conventional Groups

	Experimental group N 19	Control group N 17	Conventional group N 16
Class:			
Freshman	3	2	0
Sophomore	7	5	8
Junior	7	10	7
Senior	1	0	0
Graduate	1	0	1
Sex: Male	13	13	12
Female	6	4	4
Major:			
Television and Radio (TR)	13	11	15
Non-TR Major	6	6	1
Experience:			
Previous experience with any TV equipment:			
Yes	7	4	3
No	12	13	13

Table 4.2. Post-test Summary and Reliability Data

Summary Data--Post-test Experimental Group	
Mean Item Difficulty	36
Mean Item Discrimination	55
Kuder Richardson Reliability #20	.9114
Standard Error of Measurement	10.7527

Summary Data--Post-test Conventional Group	
Mean Item Difficulty	41
Mean Item Discrimination	28
Kuder Richardson Reliability #20	.9446
Standard Error of Measurement	4.4997

Summary Data--Post-test Combined Experimental and Conventional Groups	
Mean Item Difficulty	38
Mean Item Discrimination	47
Kuder Richardson Reliability #20	.9734
Standard Error of Measurement	4.8019

All tests were administered to the subjects by their regular course instructor. That is, the instructor for TR 201 administered the pre- and post-tests to the experimental and control groups, and the instructor for TR 202 administered the pre- and post-tests to the conventional group.

The procedure of having the regular instructors administer the tests to their respective classes was used in an attempt to minimize the antagonism undergraduates sometimes feel when a stranger enters a class and announces that the students are going to be used in a research experiment. This practice has become a common and sometimes irritating activity for some undergraduates.

The extra precaution of testing all the television class members was used in an attempt to minimize any "Hawthorne effect" to the one laboratory section which was participating in the experiment. The television production class was told that the pre-test was being used to measure their entry behavior (competence level at the beginning of the course). When the post-test was given at the end of the first studio rotation, they were told it was a diagnostic test to allow them to judge how much they had achieved during the first segment of the course.

However, in the radio course, TR 201, the entire class was in either the experimental group or the control group. The students were told in advance that they would be given a special short unit on television production in order to better prepare them for the next production course in the curriculum, TR 202. The only surprise, then, was when the control group received the post-test and had not yet received any instruction.

The pre-test was given to the conventional group of the television class on the first day of class, Spring Term, 1972, and the post-test administered three weeks later. The pre-test was given to the experimental and control groups (radio class) midway through the same term, and the post-test one week later.

The index of difficulty for each post-test item was tabulated for both the conventional group and the experimental group. When there was a disparity in the index of difficulty of forty or more between the two groups on a given question, that question was isolated for possible discussion. If either group showed an index of difficulty of fifty or more on a question, that test item was also isolated for possible discussion. The indexes of difficulty used to determine which questions would be isolated for possible discussion were chosen arbitrarily by the researcher.

Student Attitude Questionnaire

Following the completion of the new mediated instructional unit, the experimental group was asked to respond to an attitude questionnaire (Appendix I). The questionnaire was developed by Twelker (1970) and cited by Nord (1971, pp. Z-1 to Z-8). The questionnaire is designed to be used, "with minor modifications," as part of the "summative evaluation of almost any instructional system development project" (Nord, 1971, p. Z-1). The primary modifications made were to change the word "tape" to "videotape"; the word "manual" to "guidebook"; and "vocational-technical students" to "beginning Television-Radio students." The 15 item questionnaire was returned anonymously by the students.

Faculty Attitude Questionnaire

The faculty questionnaire (Appendix J), also developed by Twelker (1970) and cited by Nord (1971, pp. Z-1 to Z-8), was used in this research for the same purpose as the student questionnaire.

Six of the seven members of the Department of Television and Radio faculty previewed the videotapes before they were shown to the experimental group. The six included the three staff members who had most recently taught the basic television production course, TR 202; the person who was scheduled to teach TR 202 for the first time in the Fall Term, 1972; the person in the department who was most active in television research; and the chairman of the department.

After viewing the tapes, the six faculty members were given a copy of the guidebook and a memo stating the project coordinator's perceptions of what the project was intended to accomplish. When sufficient time had passed for the faculty to consider the video tapes and printed material, the six previewers were asked to respond to the attitude questionnaire.

The questionnaire contained 22 items and was returned anonymously.

Stimulus Material

Video Tape Segments

Six video tape segments were used as part of the experimental instructional unit. These segments contained the information to permit the students to achieve the predetermined terminal performance objectives.

Segment Number	Segment Title	Total Time	Appendix
1.	Television Control Room	0: 9:20	B
2.	Television Studio	0: 5:48	C
3.	Sarkes Tarzian Camera	0: 14:22	D
4.	Pan and Tilt Head	0: 7:50	E
5.	Crank-type Pedestal Mount	0: 7:50	F
6.	Counterbalanced Pedestal Mount	0: 7:00	G

Segment One, "The Television Control Room" provided an overview of the activities in a television control room. Included were the basic crew positions and the primary responsibilities of the crew members filling those positions. Segment Two, "The Television Studio," gave the same kind of overview of the operation of the studio. Segment Three, "Sarkes Tarzian Camera," demonstrated how that camera is operated while showing and naming the various components of the camera. The first part of the segment dealt with a camera equipped with four standard lenses while the latter part pertained to the same camera equipped with a zoom lens. The effects of the various lenses were also shown. The last three video tape segments, "Pan and Tilt Head"; "Crank-Type Pedestal Mount"; and "Counterbalanced Pedestal Mount," illustrated how these pieces of equipment are operated. The components of each were isolated and named, and the various camera movements possible with each were demonstrated.

The video tapes were recorded on two-inch video tape and then dubbed down to half-inch video tape for playback. Copies of the tapes are housed in the tape library of Instructional Television Services, Michigan State University.

The Guidebook

The guidebook (Appendix H) was designed at the same time as the video tapes. The project developers felt that the two components <u>together</u> made up the heart of the experimental instructional unit. Neither the video tapes nor the guidebook was intended to be used alone by students. Designed, therefore, as an integral part of the introductory (experimental) instructional unit, the guidebook contained information that would ...

1. Reinforce and clarify the material contained in the video tapes; and ...
2. Supplement the material provided in the video tapes. This included information that would be needed in the students' later production course work, but which was not included in the video tapes.

The guidebook contained thirty-five pages and each section was printed in a different color for easier reference by the student.

Facilities

The pre-tests and post-tests were administered in the normal classrooms for all groups. A lounge was used for exposing the subjects to the mediated portion of the experimental instructional unit. The room was fully carpeted with large draped windows. Folding chairs with padded seats were provided for the subjects. The tapes were played back on a Sony 3650 portable video tape recorder (PVTR) and fed to two 23-inch classroom television receivers. Each receiver was placed near a corner of the room and canted slightly toward the center. The subjects' chairs were arranged facing the television receivers with ten chairs in front of receiver number one and nine in front of receiver number two. In front of receiver number one the first row had four chairs and the next two rows had three chairs each. The arrangement in front of receiver number two had three chairs in each row. The students were permitted to sit in any chair they desired.

The PVTR and the sound source were placed next to the wall and mid-way between the two viewing receivers. The playback was controlled from this position.

Procedures

The subjects in the experimental group received the experimental treatment on two separate days. The first exposure was on a Friday morning, starting at 8:00. This segment lasted one hour and five minutes. The second exposure took place the following Monday night, starting at 7:00, and consumed forty-five minutes. These times were in addition to the normal requirements of the subjects' radio course. When the students arrived at the designated room they were asked to select any seat in the pre-arranged rows located in front of the television monitors.

On "Day One" the subjects were given an informal welcome and thanked for their attendance. After the guidebooks were distributed to the subjects, they were asked to read the foreword and then glance through the rest of the book. When it appeared that each person had finished the foreword and was then leafing through the rest of the book for a minimum of two minutes, they were told that the next segment would commence. The first video tape segment (Appendix B) was played. At the conclusion of the segment the subjects' attention was directed to the section of the guidebook which corresponded to the information provided in the video tape.

The subjects were asked to pay particular attention to any areas they didn't understand on the tape. The subjects were also asked to check the glossary for unfamiliar terms. Two minutes were allotted for this perusal. The next video tape segment (Appendix C) was then played and the same procedure followed thereafter. After the third and longest segment of the six segments (Appendix D) was viewed by the subjects, five minutes was allotted to check the guidebook. At the end of the five minutes the subjects were told that the guidebook was an integral part of the unit of instruction, and they were asked to read it thoroughly at home. The students were asked to pay particular attention to the parts of the guidebook which covered material contained in the taped segments they had just seen. The subjects were then told that the first session was concluded.

On "Day Two" the same general procedure was followed with three remaining tape segments (Appendices E, F, G) shown and two minutes allotted after each showing for locating the appropriate information in the guidebook. The students were again told the importance of the guidebook to the total instructional unit and asked to read it thoroughly. They were also told they would be tested on the material during their regular radio class session on Wednesday (in two days). They were thanked for contributing their own time to participate in this activity and told they could leave.

Testable Hypotheses

In order to evaluate the effectiveness of the experimental instructional unit compared to the conventional instruction, two statistical hypotheses were generated and tested at the .05 alpha level using analysis of variance.

Null Hypothesis 1. There will be no difference between the post-test mean scores of the experimental and control groups.

Alternate Hypothesis 1. Subjects receiving the experimental treatment will have a higher mean score on the post-test than subjects who did not receive the instructional unit.

Null Hypothesis 2. There will be no difference between the post-test mean scores of the experimental and conventional groups.

Alternate Hypothesis 2. Subjects receiving the experimental treatment will have a higher mean score on the post-test than subjects who received instruction via conventional classroom/laboratory techniques.

To determine if sex, previous experience, class standing, or being a Television-Radio major had an effect on post-test scores of the experimental and conventional groups, a hypothesis was generated for each of those variables and each was tested at the .05 alpha level using analysis of variance.

Null Hypothesis 3. In the experimental and conventional groups, there will be no difference between the post-test mean scores of male subjects and female subjects.

Alternate Hypothesis 3. In the experimental and conventional groups, male subjects will have a higher post-test mean score than female subjects.

Null Hypothesis 4. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with previous television experience and subjects with no previous television experience.

Alternate Hypothesis 4. In the experimental and conventional groups, subjects with previous television experience will have a higher post-test mean score than subjects with no previous television experience.

Null Hypothesis 5. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with class standings of Freshman, Sophomore, Junior, Senior, and Graduate.

Alternate Hypothesis 5. In the experimental and conventional groups, there will be a difference in post-test mean scores according to the class standing of the subjects. The post-test mean scores will increase as the class standing increases with Freshmen achieving the lowest scores and graduate students achieving the highest scores.

Null Hypothesis 6. In the experimental and conventional groups, there will be no difference between the post-test mean score of subjects who are majors in the Department of Television and Radio and the post-test mean score of subjects who are not majors in the Department of Television and Radio.

Alternate Hypothesis 6. In the experimental and conventional groups, subjects who are majors in the Department of Television and Radio will achieve a higher post-test mean score than subjects who are not majors in the Department of Television and Radio.

Design and Analysis

Each of the null hypotheses above was tested using an univariate analysis. An alpha level of .05 was selected for rejecting the null hypotheses. This analysis indicated when there was a significant difference on at least one of the dependent variables being simultaneously analyzed.

When significance did occur, the Scheffé multiple comparison technique was used as a post hoc test to establish the location of the significant difference. The Scheffé test was selected because of its power in comparing differences in group means when the groups are unequal in size.

Limitations of the Study

This study is intended to evaluate the effectiveness of an experimental instructional unit. The results of this evaluation should be interpreted with several limitations in mind:

1. The results will be generalizable only to populations similar to those studied. This study will establish baseline data for future longitudinal comparisons.
2. Inadequate motivation for the subjects in the experimental group to study the guidebook. The independent variable, or treatment, is actually three variables: the pre-test, the videotapes, and the guidebook. Exposing the subjects to the pre-test and the videotapes was accomplished without major difficulty. Motivating the subjects to study the guidebook at their own pace on their own time, however, was difficult and the success of such motivation, doubtful. The experimental group was drawn from a basic radio production course, and the time spent for

the experimental testing was outside of class and thus "on their own time." The guidebook reinforces the information provided in the tapes by providing redundancy that is missing in the tapes. Much redundancy was removed from the tapes in order to allow the material to move as quickly as possible and not bore the faster students. This information was placed in the guidebook so that students who did not grasp everything from a single viewing of the tapes could review at their own pace and as many times as necessary. Wilson (1951) obtained results that showed supplementary printed material to be very effective as an adjunct to televised lessons on teaching a skill. The motivation, however, is an important factor. Chu and Schramm (1967, p. 46) concluded that "students will learn more from instructional television under motivated conditions than under unmotivated conditions." For the students in the experimental group, there was no immediate payoff and this factor may have yielded little motivation.

3. The small sample size of 52. When the sample is assigned to three groups of 16, 17 and 19, the probability of a statistical test being significant is reduced. "The smaller sample size means any difference between the two groups has to be larger than is

needed for a larger sample, in order to obtain significant results" (Gustafson, 1969, p. 82). The sample size was determined by the size of the only two appropriate and available classes that could be used in the experiment.

4. All of the materials contained in the instructional unit being evaluated were designed specifically to instruct in the use of equipment and procedures in use at Instructional Television Services, Michigan State University. The materials are intended to provide the students with the necessary information regarding the environment in which they will function as part of their production course work. They are not <u>necessarily</u> intended to be generalizable to other locations.

CHAPTER V

ANALYSIS OF RESULTS

A compilation of the findings of the study are reported in this chapter. Although the research findings, as well as observations on the use of the systems approach or the instructional development approach for the development of the project under study will be discussed here, conclusions based on the findings will be reported in Chapter V.

Results

The raw scores on the post-test were the dependent variable in the analysis. The raw scores were the total number of correct responses out of the 152 possible correct responses. All hypotheses were tested at the .05 alpha level using analysis of variance. The raw scores for all groups are presented in Table 5.1.

Each testable hypothesis will be presented followed by two tables: one displaying the group means for each variable and the one presenting statistical analysis. Null Hypotheses 1 and 2 are treated together, however, since they were tested together in one statistical analysis. If the univariate

Table 5.1. Raw Pre-test and Post-test Scores of Control Group, Experimental Group and Conventional Group (Ranked by Post-test Score)

Table 5.1. Raw Pre-test and Post-test Scores of Control Group, Experimental Group and Conventional Group (Ranked by Post-test Score)

	Control Group 17 subjects		Experimental Group 19 subjects		Conventional Group 16 subjects	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
1)	70	84	55	142	39	115
2)	57	66	*	138	26	111
3)	37	40	65	137	4	106
4)	35	39	*	136	58	102
5)	36	37	75	129	21	102
6)	30	33	30	126	17	99
7)	25	26	12	124	43	96
8)	21	25	13	122	20	96
9)	16	24	6	108	45	92
10)	18	21	17	108	37	87
11)	23	21	*	86	14	87
12)	11	16	10	86	0	83
13)	17	16	21	80	34	79
14)	12	16	31	79	31	74
15)	12	15	13	75	26	74
16)	3	7	16	60	10	35
17)	5	6	*	55		
18)			17	52		
19)			*	15		

*Denotes pre-test not taken.

analysis reveals significance, the results of the post hoc test will then be included. A summary of the results is contained in Table 5.14 at the end of this chapter.

Null Hypothesis 1. There will be no difference between the post-test mean scores of the experimental and control groups.

Null Hypothesis 2. There will be no difference between the post-test mean scores of the experimental and conventional groups.

Table 5.2. Mean Scores and Sample Size of the Experimental, Control, and Conventional Groups

	N	Mean
Experimental	19	97.789
Control	17	28.941
Conventional	16	89.875

Table 5.3. Univariate Analysis of Post-Tests for the Experimental, Control, and Conventional Groups

Sources of Variation	Degrees of Freedom	Mean Square	F-Value	Probability less than
Groups	2	24615.46	33.90	0.0001*
Error	49	726.08		
Total	51			

*Denotes significant difference between groups at the 0.0001 level.

The univariate analysis yielded a significance at the 0.0001 level. This indicated a significant difference on at least one of the dependent variables being simultaneously analyzed. The Scheffé multiple comparison technique was used as a post hoc procedure to establish the location of the significant difference. The results of this analysis are contained in Table 5.4.

Table 5.4. Results of Post Hoc Comparison of Three Group Mean Differences as Measured by the Post-Test

	Control group	Conventional group
Experimental group	68.85*	7.91
Control group		-60.93*

*Denotes significant difference between the post-test means at .05 alpha level using the Scheffé Multiple Comparison method.

The post hoc comparison established that the significant difference was located between the mean post-test scores of the experimental group and the control group. Since the range between these mean scores was significant beyond the .05 alpha level, Hypothesis 1 was rejected. No significant difference was found to exist between the mean post-test scores of the experimental group and the conventional group. Null Hypothesis 2, then, was not rejected

<u>Null Hypothesis 3</u>. In the experimental and conventional groups, there will be no difference between the post-test mean scores of male subjects and female subjects.

Table 5.5. Mean Scores and Sample Size by Sex for the Experimental Group and the Conventional Group

	Experimental Group		Conventional Group	
	N	Mean	N	Mean
Male	13	108.923	12	90.167
Female	6	73.667	4	89.000

Table 5.6. Univariate Analysis of Sex for the Experimental Group and the Conventional Group

Sources of Variation	Degrees of Freedom	Mean Square	F-Value	Probability less than
Groups	1	544.06	0.706	0.407
Sex	1	3092.66	4.014	0.054
Interaction	1	2014.33	2.615	0.116
Error	31	770.38		
Total	34			

The univariate analysis yielded no significant difference at the .05 alpha level on all sources of variation. Therefore, Null Hypothesis 3 was not rejected.

Null Hypothesis 4. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with previous television experience and subjects with no previous television experience.

Table 5.7. Mean Scores and Sample Size by Experience for the Experimental Group and Conventional Group.

	Experimental Group		Conventional Group	
	N	Mean	N	Mean
Previous experience	7	104.714	3	101.333
No previous experience	12	93.750	13	87.231

Table 5.8. Univariate Analysis of Experience for the Experimental Group and the Conventional Group

Sources of Variation	Degrees of Freedom	Mean Squares	F-Value	Probability less than
Groups	1	544.06	0.603	0.443
Experience	1	1000.78	1.109	0.301
Interaction	1	15.48	0.017	0.897
Error	31	902.34		
Total	34			

The univariate analysis yielded no significant difference at the .05 alpha level on all sources of variation. Therefore, Null Hypothesis 4 was not rejected.

Null Hypothesis 5. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with class standings of Freshman, Sophomore, Junior, Senior, and Graduate.

Table 5.9. Mean Scores and Sample Size by Class Standing for the Experimental Group and the Conventional Group

	Experimental Group		Conventional Group	
	N	Mean	N	Mean
Freshman	3	109.667	0	0.000
Sophomore	7	87.714	8	85.000
Junior	7	112.143	7	94.143
Senior	1	55.000	0	0.000
Graduate	1	75.000	1	99.000

Table 5.10. Univariate Analysis of Class Standing for the Experimental Group and the Conventional Group

Sources of Variation	Degrees of Freedom	Mean Square	F-Value	Probability less than
Groups	1	544.064	0.621	0.438
Class Standing	4	1090.216	1.244	0.316
Interaction	2	483.118	0.551	0.583
Error	27	876.363		
Total	34			

The univariate analysis yielded no significant difference at the .05 alpha level on all sources of variation. Therefore, Null Hypothesis 5 was not rejected.

Null Hypothesis 5. In the experimental and conventional groups, there will be no difference between the post-test mean score of subjects who are majors in the Department of Television and Radio and the post-test mean score of subjects who are not majors in the Department of Television and Radio.

Table 5.11. Mean Scores and Sample Size by Department of Television and Radio Majors and Non-majors for the Experimental Group and the Conventional Group

	Experimental Group		Conventional Group	
	N	Mean	N	Mean
TR major	13	96.692	15	90.067
Non-major	6	100.167	1	87.000

Table 5.12. Univariate Analysis of TR Majors and Non-majors for the Experimental Group and the Conventional Group

Sources of Variation	Degrees of Freedom	Mean Square	F-Value	Probability less than
Groups	1	544.064	0.5830	0.4510
Major/non-major	1	25.718	0.0276	0.8693
Interaction	1	32.654	0.035	0.8529
Error	31	933.243		
Total	34			

The univariate analysis yielded no significant difference at the .05 alpha level on all sources of variation. Therefore, Null Hypothesis 6 was not rejected.

Further Analysis

Post-Test

In addition to testing the six hypotheses, an item analysis was performed on the post-test for both the experimental group and the conventional group. The index of difficulty (i.e., percentage of subjects responding incorrectly) of each post-test item was calculated for each group. The results of this analysis are contained in Appendix K. This appendix also specifies, by number, the terminal performance objective to which each test item relates. Appendix L lists these terminal performance objectives.

When the difference between the index of difficulty for each group on any test item exceeded the arbitrary figure of forty (41 to 100), that item was isolated for discussion. If either group exceeded the arbitrary index of difficulty of fifty (51 to 100), that question was also isolated and discussed.

The arbitrary criteria used to single out certain test items appear to have isolated those questions which were most troublesome to either group; that is, questions which were missed by over half the subjects in either or both groups and questions which were much more difficult or easy for one group than the other. Sixty questions were thus isolated and, of these items, the experimental group had a higher percentage of the group answering correctly on forty-four, while the conventional group had a higher percentage on the remaining sixteen. Many of the questions presented no clear-cut reason for their difficulty. However, in general, the questions relating to projection and the video switcher seemed to pose the biggest problems to the experimental group. Questions relating to the camera mounts and studio lighting appeared most difficult to the conventional group. Both groups showed a lack of knowledge regarding the television camera pick-up tube (image orthicon and vidicon) and how to focus and operate the zoom lens.

Following are the post-test questions designated for discussion. Preceding the number of each test item, the following two or three symbols appear:

- * indicates that the percentage difference between the index of difficulty for the experimental group and that of the conventional group is greater than forty (41 to 100).
- # indicates that one or both of the two groups had an index of difficulty exceeding fifty (51 to 100).
- E indicates that the experimental group had a higher index of difficulty (that is, the experimental group had more incorrect responses to that test item).
- C indicates that the conventional group had a higher index of difficulty (that is, the conventional group had more incorrect responses to that test item).

<u>Post-test Questions Isolated for Discussion</u>

A. In the following, provide the information asked for (e.g., question 1), provide the correct term(s) for the definitions (e.g., question 2), or fill in the blanks (e.g., question 3). A single blank or space (i.e., _________) does not necessarily mean only one word or term is required.

C # 1. State the name of the device used to control the studio lights.__________________________.

The experimental group was shown pictures of the lighting control board and a super of the name over the picture. The conventional group received very little instruction in lighting and no practice.

C # 3. To direct the pedestal to the right, the ____________ is turned to the ___________.

Close-ups and supers were used in the experimental unit to illustrate this function.

E # 4. Raising the pedestal is called _________________, and lowering it is called __________________.

This information was presented in the video tapes and in the guidebook. Perhaps additional study of the guidebook and/or specific hands-on experience with the component is necessary in order to internalize this information.

C # 6. In the control room, the ___________ monitor shows the picture that is actually being sent to the transmitter or the videotape recorder.

In the experimental unit, supers were used over pictures of the line monitor.

E # 9. Motion picture film and slides are shown through projectors that are part of the unit called _________________________.

This information was presented in the videotapes and guidebook. Perhaps additional study of the guidebook is necessary for the experimental group.

C # 12. To pre-set the focus of a zoom lens on a black and white studio floor camera like those used at MSU's ITV, one first zooms ________________ and adjusts the __________focus, then zooms ________________and adjusts the _________focus.

Both groups did poorly but the conventional group had an index of difficulty of 94. This was fully demonstrated in the experimental unit and included in the guidebook. Hands-on experience may be necessary.

C # 13. When not in use, the counterbalanced pedestal is locked down by the ________________.

The experimental unit used a demonstration, close-ups, and supers to convey this information. The conventional group received it from their text book.

C # 15. The cameraman may feel free to adjust how many knobs on the pan and tilt head? ________________

The reason why only two knobs may be adjusted were given in the experimental unit. Close-ups and supers with the name and function of each knob were used.

C #*16. By rotating the locking grip, it is possible to adjust the ______________of the panning handle.

Again, demonstration, close-ups, and supers were used in the experimental unit.

C # 17. When a lens is improperly racked, you will have a(n)_______________ picture in your viewfinder.

The incomplete picture resulting from an improperly racked camera was demonstrated in the experimental unit using a subjective camera view.

E # 20. Maintaining the counterbalanced pedestal at any desired height is accomplished by using the ____________________________.

Both groups scored poorly on this item. The demonstration may not have been clear enough in the experimental unit.

C # 21. The cameraman controls the aim of the camera with the _________________________.

Controlling the aim of the camera with the panning handle was demonstrated in the experimental unit using an objective camera view.

E # 24. An instantaneous change from one TV picture to another is a(n)___________________.

Many subjects in both groups answered with the film term of "cut" rather than the television term of "take." Additional reinforcement may be needed in the experimental unit.

E # 31. A multiplexer is a component of the unit called____________________.

This information was presented in the videotapes and in the guidebook. Additional study of the guidebook may be necessary for the experimental group.

C # 33. Before actual production in the studio can begin, the studio must be prepared, or in TV parlance, it must be _______________.

Set up was dramatized in the experimental unit. A super was used over the scene naming the activity.

C # 35. What is different about the zoom lens mounting on a Sarkes Tarzian camera than on most cameras? ______________________________

Both groups did very poorly on this item.

The fact that the camera has both a zoom lens and standard lenses may need additional reinforcement in the guidebook.

C #*36. State the name and location of the apparatus on which the majority of the TV studio lights are mounted.
(a) (name)________________________

A shot of the light grid, or tracks, with a super of its name was used in the experimental unit.

---

a) C # 38. Identify the two basic lens configurations
b) C # used in television.
(a) _______________ (b) _____________

This is a poor question and related to a poor objective.

This question and objective should be eliminated from future tests. Both groups did very badly on this item.

C #*39. The type of camera mount that allows easy vertical movement, beyond just tilting, is the ____________________.

The pedestal mount was demonstrated and labeled with supers in the experimental unit.

C #*40. By engaging ________________ the position of the pedestal base may be changed in order to line it up in any desired direction.

In the experimental unit, quite a thorough demonstration was shown of this activity. The underside of the pedestal was also shown and the effects to the wheels by engaging Steer 1 and Steer 3 were demonstrated. All of the questions involving Steer 1 and Steer 3 were difficult for the conventional group.

E #*42. One picture fades out as another picture fades in: ______________________.

The experimental unit has what was thought to be a good demonstration of camera changes. However, additional reinforcement in the guidebook may be necessary.

E #*46. The ________________inform(s) everyone in the studio which camera is on the air.

This question was confusing to many subjects, but more so to the experimental group. A number of subjects were looking for a person, e.g., floor director, camera man, instead of the tally lights. The question should be changed to read "The __________ on the camera informs everyone in the studio that camera is on the air."

C#*47. Synchronized steering of all three wheels on the pedestal mount is called ______________.

Another "Steer-3" question and difficult for the conventional group.

C,E # 50. The following calls for the <u>direction the zoom control is manipulated</u>.

To zoom in __________ the zoom control.
To zoom out____________the zoom control.

Subjective and objective camera views on a split screen were used to demonstrate the zoom in the experimental unit. The information is also contained in the guidebook. Hands-on experience may be necessary to internalize this information.

B. Define the following terms:

E #* 2. Aspect ratio:

E #* 4. Burn-in:

C #* 5. Close-up:

C #* 6. Cover shot:

C #* 7. Cut:

C #* 8. Dimmer:

E #* 9. Essential area:

E # 10. Feed:

C # 11. Follow focus:

C # 13. Image-orthicon:

C # 15. Pick-up tube:

C # 21. Taking position:

C # 22. Vidicon:

These terms were found in the guidebook of the experimental group and in the text of the conventional group. The biggest problem areas for both groups were questions 13, 15, and 22. The pick-up tube concept did not seem to be learned by either group. More reading on the part of both groups may be necessary.

C. Answer the following by writing the answer in the space(s) provided.

State the seven basic members or crew positions of a TV production crew and a primary responsibility of each. (Do not include assistants.)

	Crew Position		A Primary Responsibility
C #* 4.	a. (Projectionist)	C #*	b.
C #* 7.	a. (Lighting Director)	C #*	b.

Again, lighting receives little attention in the conventional group. However, few people in either group missed the other five crew members. It is suggested that this question be revised in order to make clearer what is being asked for. Responses to parts "b." were very weak, even though correct in many cases from both groups (e.g., something more than "run the camera" is desired for the responsibility of the cameraman). The revised question should provide the crew position and ask for its responsibility, specifying the need for more depth in the answers.

E. Identify these hand signals as used in television: (Questions are in the form of illustrations)

C #* 2. (speed up)

C #* 5. (Wrap up or 15 seconds)

C #* 7. (30 seconds)

The thirty-second hand signal used in the instructional unit and illustrated in the test was not demonstrated to the conventional group. The three hand signals above probably have the greatest numbers of variations of those used in the television industry.

F. In the corresponding numbered spaces, write the name of the numbered items indicated by the arrows. (Question refers to an illustration of a counter-balanced pedestal mount.)

C #* 1. (Steering wheel or ring)

C # 2. (Pedestal locking or tension ring)

All parts of the counterbalanced pedestal mount were demonstrated in the experimental unit and supers were used to label these parts.

G. In the corresponding numbered spaces, write the name of the numbered items indicated by the arrows. The camera and mount are the types used only at ITV. (Question refers to an illustration of a crank-type pedestal mount and a Sarkes-Tarzian vidicon camera.)

C #* 4. Trigger to engage Steer-1)

Another of the Steer-1, Steer-3 questions that continued to give the conventional group trouble.

H. In the corresponding numbered spaces on the two drawings below, write the name of the numbered items indicated by the arrows. (Questions refers to two illustrations. Numbers 1-4 refer to a picture of a pan and tilt head. Number 5 refers to a picture of a counterbalanced pedestal mount base showing the buttons to engage Steer-1 and Steer 3.)

C #* 1. (Entire pan and tilt head)

C * 5. (Buttons used to engage Steer-1 and Steer-3)

Demonstration and supers were used in the experimental unit. The information was also contained in the guidebook.

I. Identify the following:
(Question refers to an illustration of a TV camera indicating the viewfinder hood and the lens on the outside; the viewfinder and pick-up tube on the inside.)

C # 1. (Viewfinder hood)

C # 2. (Viewfinder)

C # 3. (Pick-up tube)

Neither group did particularly well on these questions. The illustration may have been confusing, although there were similar ones in both the textbook of the conventional group and the guidebook of the experimental group.

J. In the corresponding numbered spaces, write the name of the numbered items indicated by the arrows. (Question refers to an illustration of an RCA Model TK-60 image orthicon television camera.)

C # 1. (Tally lights)

E # 3. (Electronic capping switch)

Again, this camera was illustrated in both the textbook and the guidebook. Both groups had problems on these two questions.

M. What camera movements and their direction would be called for to center the head in the TV screen? (Question refers to an illustration showing a head framed too low in the screen.)

C # 2. (Pedestal down)

This was demonstrated in the experimental unit by both objective camera, to show how the move was accomplished, and with a subjective camera, to show the results.

N. Which camera movements and their direction would be called for to center the head in the TV screen? (Question refers to an illustration showing a head framed too far to the left of the screen.)

C # 2. (Truck left)

The same techniques were used here as noted in the question above.

O. Using the spaces below the drawing, name the camera movements indicated by the numbered arrows. (Question refers to an illustration showing ten basic camera moves.)

E # 1. (Pedestal up)

E # 2. (Pedestal down)

This time the pedestal up/down gave the experimental group more trouble.

P. In the following questions, you are to draw in the appropriate positions for the fader handles (see example at right), and put an X (X) on button(s) to be depressed.
(There is a simple line drawing of a two bank switcher under each question. The subjects' responses for each question were made on the drawings.)

[1. Put camera 1 on the air]

E # 2. Starting with your answer above, take 2.

The switcher was covered only in the guidebook in the experimental unit. Additional study of the guidebook may be necessary, or actual hands-on experience may be required to fully understand this information.

Student and Faculty Attitudes Toward the Instructional Unit

Attitudes of both the faculty and students toward the instructional unit were investigated as part of this study. Attitude questionnaires were administered to the experimental group (Appendix I) and to the Department of Television and Radio faculty (Appendix J) after each group had been exposed to the experimental instructional unit being evaluated in this study. Tabulation of the results of these questionnaires is present in Table 5.13.

Both questionnaires are slightly modified versions of those presented by Twelker (1970), as an evaluation plan and cited by Nord (1971, pp. z-1 to z-8). The plan is based on the concept of rating the instructional unit from the point of view of both the instructors and the students based upon certain criteria. Each item in the questionnaire relates to one of the three criterion factors.

A. Design--Does the resultant instructional unit match well the objectives or instruction as judged by instructors and learners?

To answer this question, attention should be paid to the data for questions 1 and 5 through 17 on both questionnaires. (Note: Question 13 is different in the student and instructor questionnaires.)

Table 5.13. Mean Scores for Student and Instructor Questionnaires

Criterion factor	Item and number	Students' mean score	Instructors' mean score
A. Design	1. Objective clarity	5.24	4.83
	5. Relation of content with objectives	5.41	5.67
	6. Content presentation systematic	5.47	5.67
	7. Important ideas emphasized	5.12	5.17
	#*8. Amount of content	*3.24	#2.75
	#*9. Rate of development	*3.83	#3.41
	#10. Repetition	5.65	#3.50
	11. Method of presentation	5.35	5.83
	12. Verbal difficulty match w/learner level	5.00	5.67
	13. Narrator	4.70	ø
	13. Video tape recording, voice, music, manner of speech	ø	4.50
	14. Sound track	5.47	3.83
	15. Integration of manual w/media	5.17	4.83
B. Credibility	3. Relation to previous knowledge	3.76	4.00
	4. Appropriateness for target audience	4.41	5.67
	16. Information accurate	ø	5.20x
	17. Importance of any inaccuracies	ø	5.40x
	18. Content up-to-date	ø	5.00x
	19. Will information be confirmed by subsequent experience of student	ø	5.33
	20. Will student be able to use or apply the information	ø	5.50
C. Affectivity	2. Ability to attract and hold interest	4.41	5.00
	y21. Is format effective	ø	y3.00
	y22. Is instructional unit cost effective	ø	y2.00x

*Indicates 3.5 most desirable on student questionnaire; # Indicates 3.5 most desirable on instructor questionnaire; ø Question not included on questionnaire; y Indicates 1 is most desirable response; x One faculty member did not respond.

B. Credibility--Is the content of the instructional unit credible and relevant?

Questions 3 and 4 on both questionnaires plus 16 through 20 on the instructor questionnaire.

C. Affectivity--Does the instructional unit create a positive affect toward its use by instructors and students?

Question 2 on both questionnaires, plus 21 and 22 on the instructor questionnaire.

For purposes of judging the adequacy of the instructional unit, Nord (1971, p. z-7) suggests the following guidelines be used:

Median (or Mean) Score	Judgment
1 - 2.99	Clearly inadequate; major revisions indicated
3 - 3.99	"Warning flag"; if score consistent across terms, revise system
4 - 4.99	Marginal adequacy; if score consistent across terms, pay particular attention to possible revision of system
5 - 6	Clearly adequate; no revisions indicated

These guidelines hold for the interpretation of all data except items 8 and 9 on the student questionnaire and items 8, 9, and 10 on the instructor questionnaire. On these five items 3.5 is most desirable. Also for items 21 and 22 on the instructor questionnaire, 1 is most desirable.

The results of the student and instructor questionnaires indicate a positive attitude toward the experimental instructional unit.

The mean scores of the questions related to design, including objectives, content, and rate and method of presentation, generally indicate that, in the judgment of the students and instructors, the design was clearly adequate and no revisions were indicated. The faculty, however, rated the clarity of the objectives (Item 1) as being slightly marginal. Although students and instructors were in close agreement that the material was presented at the best rate (Items 8 and 9), there appears to be some question on the amount of material presented. Both the students and the instructors rated the narrator on the videotape recording (Items 13) as being slightly less than clearly effective. The disparity of ratings between students and instructors as to the quality of the sound track may be the result of a substandard audio track playback heard by the faculty when they previewed the videotape. (The audio problem was rectified for the students' viewing.)

The responses relating to credibility (Items 3 and 4) reflect the variety of student entry skills. For the most part, the tested students were beginning radio students who had little or no previous experience in the television medium. The mediated unit assumes no such prior student experience so it is possible that this question may have been confusing to both faculty and students.

Under the category of affectivity, the students rated the ability of the instructional unit to attract and hold attention as slightly less than clearly adequate. The faculty, on the other hand, believed that the instructional unit probably <u>would</u> attract and hold the student interest. In Item 21, however, the television faculty was less than positive that the format of the instruction unit (i.e., via television and print media) was more effective than some other format (e.g., lectures, demonstrations or text books).

Nevertheless, the overall ratings by students and faculty indicate that the instructional unit is clearly adequate, and indicate further that few revisions are required.

Observations and Discussion Regarding the Use of Instructional Development

<u>Instructional development takes time</u>. Bachrach's law states: "Things take longer than they do." This "law" was not conceived to describe instructional development (ID), but, as Gustafson remarks (1971, p. 13): "... ID is certainly under its jurisprudence." This description was certainly true of the project being evaluated in this study. It was estimated that three quarter-terms would be needed to design, produce, and validate all of the project's components. The entire project actually took six terms--or approximately 15 months. One potential weakness of ID models (including the model used to develop this project), is that there is no indication of what percentage of the total project time should be allotted to any one step or function. The assumption was made by the project developers that

each of the steps would consume somewhat equal blocks of time. However, the first four steps --"Identify the Problem," "Analyze the Setting," "Organize the Management," and "Identify the Objectives"--actually required two-thirds of the total project time.

Another misleading aspect of the model is that its processes appear to occur in a linear fashion. In the case of this instructional development project, a linear approach was impossible. An example, Function Two--"Analyze the Setting,"--was initiated in the early stages and was continued throughout the project. The analysis of the setting (or what the setting would be at the completion of the project), changed several times during the development. As the anticipated setting was changed, objectives relating to the facilities of the setting were changed as well. As a result, methods to achieve the objectives also had to be altered.

A definite entry and exit point, as indicated on models, also seems inappropriate. It appears that ID could be initiated at any point, and it does not necessarily stop at the decision to implement. This study is intended to provide evaluation data upon which an implement or a do-not-implement decision can be made. If the decision by the Department of Television and Radio is to implement the experimental instructional unit, the instructional development process should not stop at that point. Continued evaluation should be performed, and, as required, information contained within the instructional unit should be revised, eliminated, or supplemented. Another possible weakness of models is that they tend to concentrate on functional factors to the exclusion of human factors. Human factors are in fact the most important elements in the instructional development process. The most glaring mistake made during the project was in not more directly involving the faculty of the Department of Television and Radio in the development of the instructional unit. The project developers felt that it would be more expeditious to make content decisions without involving the entire faculty. This omission may have resulted in a less desirable product and resistance on the part of the faculty to use the final product.

Another instance of faulty judgment was related to time considerations: the developers waited too long to produce the prototype. More time than was probably necessary was spent trying to perfect the prototype on paper. The script contents (plus the sequencing of those contents) were revised too often in the writing stage. Content problems would have become more quickly evident had the script been committed sooner to video tape and tried out with students. Although ID can require a great deal of time, unnecessary additional time was spent on this particular project due to the inexperience of the developers.

Despite these shortcomings, however, instructional development is indeed an important and viable tool for improvi

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In the final analysis, <u>any</u> time used to employ a systems approach for improving instruction is a worthwhile investment. Although "flying by the seat of your pants" may complete a job more quickly, and, in some cases, do it quite effectively, the production of consistently high quality instructional products is not necessarily assured.

By using a systems approach for the development of improved instruction, educators have an opportunity to develop more effective instruction, and they can analyze and evaluate shortcomings when their product fails. Thus, if the product does not completely achieve its desired goal, it does not necessarily have to be completely eliminated. Because of the systematic development of the product, certain questions can be asked: "Are the objectives sound and worthwhile?" "Were the most effective methods employed to arrive at those objectives?" These questions could lead the developers of a project to isolate weaknesses and propose alternate methods. Without a systematic "road map" that insists on determining objectives and specifying methods for learners to use to achieve those objectives, and, finally, evaluation of both the process and the students' achievement, attempts to improve instruction will remain haphazard and subject to luck.

Summary

Six hypotheses were tested using analysis of variance. The .05 alpha level of confidence was used to test the hypotheses for significance. A summary of these results can be found in Table 5.14.

An item analysis was used to investigate the post-test instrument. This was done to determine which test items were more difficult for each group--experimental and conventional. The questions relating to objectives involving control room projection and the video switcher were most difficult for the experimental group. The conventional group had lower scores on questions relating to objectives on studio lighting and camera mounts. However, both groups indicated a lack of knowledge regarding the television camera pick-up tube and how to focus and operate a zoom lens.

To determine the attitudes of the students and the Department of Television and Radio faculty who had been exposed to the experimental instructional unit, questionnaires were administered to both groups. The results of both questionnaires indicated a positive attitude toward the instructional unit by both groups.

Table 5.14. Summary of Results of Tests of Hypotheses

Null Hypothesis	R = Rejected N = Not rejected
1. There will be no difference between the post-test mean scores of the experimental and control groups.	R
2. There will be no difference between the post-test mean scores of the experimental and conventional groups.	N
3. In the experimental and conventional groups, there will be no difference between the post-test mean scores of male subjects and female subjects.	N
4. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with previous television experience and subjects with no previous television experience.	N
5. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with a class standing of Freshman, Sophomore, Junior, Senior, and Graduate.	N
6. In the experimental and conventional groups, there will be no difference between the post-test mean score of subjects who are majors in the Department of Television and Radio and the post-test mean score of subjects who are not majors in the Department of Television and Radio.	N

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

The purpose of the research reported in this study was to evaluate a mediated presentation to be used as a means of introducing students to television production at Michigan State University. The mediated introduction systematically presented the basic television production information needed by the student in order to function in the studios of Instructional Television Service (ITV), Michigan State University.

An instructional development (ID) model was used as a guide to produce systematically all materials for the mediated instructional unit. This ID model contained nine steps or functions grouped in three stages (National Special Media Institutes, 1971, pp. 1-2).

STAGE 1: DEFINE

Function 1: IDENTIFY PROBLEM
Involves activities such as assessing needs, establishing priorities and clearly stating a particular problem as agreed upon by all concerned.

DEFINE	Function 1 IDENTIFY PROBLEM • Assess Needs • Establish Priorities • State Problem	Function 2 ANALYZE SETTING • Audience • Conditions • Relevant Resources	Function 3 ORGANIZE MANAGEMENT • Tasks • Responsibilities • Timelines
DEVELOP	Function 4 IDENTIFY OBJECTIVES • Terminal • Enabling	Function 5 SPECIFY METHODS • Learning • Instruction • Media	Function 6 CONSTRUCT PROTOTYPES • Instructional Materials • Evaluation Materials
EVALUATE	Function 7 TEST PROTOTYPES • Conduct Tryouts • Collect Evaluation Data	Function 8 ANALYZE RESULTS • Objectives • Methods • Evaluation Techniques	Function 9 IMPLEMENT/RECYCLE • Review • Decide • Act

Figure 6.1. NSMI nine-step ID model.

Function 2: ANALYZE SETTING
Collecting and locating relevant information on the instructional setting as it relates to the problem statement in Function 1 on the audience, conditions and relevant resources.

Function 3: ORGANIZE MANAGEMENT
All activities necessary for the solution of the Instructional Development problem are organized such as tasks, responsibilities and timelines.

STAGE II: DEVELOP

Function 4: IDENTIFY OBJECTIVES
Identifying specific terminal and enabling objectives which the learner is expected to perform.

Function 5: SPECIFY METHODS
Determine which instructional strategies, materials and resources from those available will maximize learning of a specific objective for a particular content, learner and type of learning.

Function 6: CONSTRUCT PROTOTYPES
Designing and producing or assembling all materials for an instructional package(s) and completing designs for their tryout and evaluation.

STAGE III: EVALUATE

Function 7: TEST PROTOTYPES
Tryout of instructional prototypes with a representative sample of the student audience.

Collecting and recording evaluation data.

Function 8: ANALYZE RESULTS
Analyzing and interpreting data from the tryout and all previous Instructional Development functions such as the objectives, methods and evaluation techniques.

Function 9: IMPLEMENT/RECYCLE
Review of the Instructional Development Process resulting in a decision to implement on a full scale as designed or to return to previous functions for revision or modification purposes.

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The experimental treatment was evaluated using students enrolled during Spring Term, 1972, in two of the Television and Radio Department's courses. These two courses were the basic radio production course (TR 201) and the basic television production course (TR 202). TR 201 is a prerequisite for TR 202. The evaluation of this experimental treatment had three main parts.

For part one of the evaluation, the forty-eight students in TR 201 were randomly assigned into two groups: control and experimental. The experimental group received the entire treatment of pre- and post-tests, videotaped segments and the guidebook. The control group received the pre-test and the post-test at the same times as the experimental group, but they did not receive the rest of the treatment.

Approximately one-third of the fifty-four students enrolled in the television production course, TR 202, were randomly assigned to the laboratory group which utilized the same equipment demonstrated in the experimental treatment. (Each laboratory group was assigned to a different studio using different equipment for a period of time and then rotated to another studio. This rotation continued until all students had spent time in all three studios used in the course.) This group received instruction in the conventional method including lecture, hands-on experience and assignments in required textbooks, was pre-tested on the first day of class, Spring Term, 1972, and post-tested at the end of their first studio rotation (3 weeks). The instruments used for the pre- and post-tests were the same as those used with the experimental and control groups.

Six null hypotheses were generated and tested.

Null Hypothesis 1. There will be no difference between the post-test mean scores of the experimental and control groups. (Rejected)

Null Hypothesis 2. There will be no difference between the post-test mean scores of the experimental and conventional groups. (Not rejected)

Null Hypothesis 3. In the experimental and conventional groups, there will be no difference between the post-test mean scores of male subjects and female subjects. (Not rejected)

Null Hypothesis 4. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with previous television experience and subjects with no previous television experience. (Not rejected)

Null Hypothesis 5. In the experimental and conventional groups, there will be no difference between the post-test mean scores of subjects with a class standing of Freshmen, Sophomore, Junior, Senior, and Graduate. (Not rejected)

Null Hypothesis 6. In the experimental and conventional groups, there will be no difference between the post-test mean score of subjects who are majors in the Department of Television and Radio and the post-test mean score of subjects who are not majors in the Department of Television and Radio. (Not rejected)

All hypotheses were tested for significance at the .05 alpha level using analysis of variance.

The second part of the evaluation utilized the post-tests of the experimental group and the conventional group. An item analysis was performed on the tests for each group. The index of difficulty for each test item was then compared

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by group. When that comparison showed a difference between groups of over forty (41-100) that item was isolated and discussed. Any test item with an index of difficulty greater than fifty (51-100) for either group was also isolated and discussed. These criteria were arbitrarily determined by the researcher.

For the third part of the evaluation, an attitude questionnaire was administered to both the experimental group and to the Television and Radio Department faculty after both groups had been exposed to the new instructional unit. This was done to determine not only the attitudes of both groups toward the mediated introduction, but also to further identify weaknesses and strengths of the experimental treatment.

Conclusions

1. Students in the experimental group learned from the instructional unit.
2. Students in the experimental group scored as high on the post-test after two hours of mediated instruction plus home study as did the students in the conventional group after more than two weeks (14 hours) of lectures and hands-on laboratory experience, plus home study of assigned readings in the required text, thus affecting an important efficiency in instructional time.
3. A student's sex, previous television experience, class standing, or status as a television-radio major did not

affect the student's performance on the post-test. This was true regardless of the style of instruction (mediated or conventional) that the student received.

4. Students receiving instruction via the mediated instructional unit had a higher degree of difficulty on questions concerned with the control room, the projection equipment, and the video switcher. The students who received instruction in the conventional manner experienced greater difficulty on the post-test with questions relating to camera mounts and studio lighting. Students in both groups had great difficulty with questions on the post-test relating to the television camera pick-up tube and the operation of a zoom lens. Hands-on experience or additional video taped material and increased study of the guidebook may be necessary to improve the scores of groups receiving the mediated instruction. However, close-ups, superimposition of terms, and subjective camera views used in the video tapes all had a positive effect in bringing about information gain in the experimental group. The guidebook provided the necessary reinforcement to the material provided in the video tapes.
5. The students and the Department of Television and Radio faculty both expressed positive attitudes toward the mediated instructional unit after their exposure to it.
6. Instructional development (ID) is a time-consuming process, but one which increases the chances of producing a

successful product. ID provides a systematic method for developing instruction. Because of this systematic approach, and the use of a model as a guide through the process, each of the functions in the process can be subjected to evaluation, as can the instructional development gestalt and the product it produces.

Discussion of Results

The difference between the mean scores of the experi-
ental group and the conventional group were not different to
significant degree. However, learning might increase for
roups receiving the mediated instruction in a real situation.
his suggestion is made for two reasons. First, the guide-
ook is an integral part of the unit and the learning is
ependent on the student's grasp of the information in it.
e subjects who participated in the experimental group were
ing so on their own time at the request of their instructor.
e directions given them concerning the guidebook were to
ke the guidebook home and study it thoroughly. This re-
ired the students to spend more of their own time, and
ere was perhaps little motivation to encourage them to do
. Their scores on the post-test of the experimental unit
d no effect on their regular class grades.

If the instructional unit is implemented as part of the
sic television production course, the motivation provided
a grade for their post-test score, plus the fact that they

an immediately put their new knowledge to use, possibly will rovide the needed motivation.

The second fact that leads to this suggestion is that though the difference between the means of each group s very small (7.9 greater for the experimental group), 42.10% the subjects in the experimental group achieved scores gher than the top score of the conventional group. Only e person in the experimental group scored lower than the west score in the conventional group. The slower learners, en, could be exposed to the mediated program again in order increase their learning. May and Lumsdaine (1958) re- rted that a second showing of television material increased original gain by almost one-half. The learning gain, ever, then slows down with additional exposure. Driscoll d.], Hirsch (1953), and Ketchum and Heath (1963) all showed ilar findings. A second exposure for students can be omplished quite easily with the mediated program. This d of second chance is extremely difficult to provide with ventional instruction.

Even with no significant difference in learning reported ween the experimental group and the conventional group, experimental treatment is a much more efficient way to ide students with an orientation to television. In two s students in the experimental group were able to achieve the conventional group took fourteen hours to achieve. hermore, all of the objectives for the experimental in- ctional unit should be acquired before any hands-on experience in order to make that hands-on experience most beneficial. That is, students should know the terminology, names of equipment, and how that equipment operates before they start using the equipment. On the job training to achieve these objectives makes the limited time available for hands-on experience less productive than need be. Since laboratory exercises are a team effort persons not achieving the objectvies hinder the entire team. If some persons cannot respond to the director's commands or cannot make the correct adjustments to the studio equipment, the production exercises suffer and thus the benefit of the exercises diminishes for all students.

If students can learn in two hours what with conventional methods takes fourteen hours, the time saved is considerable. This savings means the students, the course instructor and the three laboratory instructors all have an extra twelve hours during the term which may be used in other ways. For a class of fifty and a staff of four the total savings amounts to 648 hours.

Recommendations

Based upon the conclusions of this study, it is recommended that the Department of Television and Radio implement the experimental instructional unit as the introductory phase of the basic television production course, TR 202. Further, when the Department is able to establish an experimental classroom/studio, the experimental unit should be withdrawn from TR 202, revised, and established as a separate mini-course. The videotapes now contain the following demonstrations: Floor Director's hand signals, camera unit operation and basic movement, operation and results of focus for standard lenses and a zoom lens. The revisions mentioned should include additional videotapes demonstrating the use of the video switcher and the control room projection equipment. Whenever possible, hands-on testing should replace those items on the present post-test which are more appropriate to demonstrate than describe (e.g., camera movements). Videotapes should also be produced, then, which demonstrate these hands-on objectives. Corresponding information should be contained in the guidebook with a statement of the following recommended hands-on objectives. (All objectives listed below assume that a "given" will be whatever piece of television equipment, e.g., a television camera, is needed to accomplish the objective.)

Objectives for the Camera Unit

1. The student will demonstrate his ability to obtain a picture of a test graphic in focus and framed so the points of four arrows pointing outward on the test graphic just touch the four sides of the camera monitor or viewfinder. The student will obtain this picture on each of the four lenses on the camera starting with the longest lens and progressing by racking lenses with the next longest followed by the third longest and ending with the shortest. This will require a dolly-in and re-framing after each new lens is racked into the taking position. The student will be given one minute to accomplish the task and it must be done with 100% accuracy according to the demonstration on the video tape and information provided in the guidebook.

. The student will demonstrate his ability to adjust the zoom lens in order to zoom all the way in and out of a fixed target keeping the target in focus throughout the zoom. The student will then accomplish this zoom in and out. He will accomplish these objectives within thirty seconds.

. The student will demonstrate his ability to dolly with a 2-inch lens by: first, framing up the provided 3x4 ratio graphic, keeping the X located at the center of the graphic within a circle in the center of the camera viewfinder and with the framing symbols ([ ]) nearest the center of the graphic at the edges of the four corners of the viewfinder. Second, the student will dolly back until the outside framing symbols, placed near the outer edges of the graphic, touch the four corners of the viewfinder keeping the camera focused well enough during the entire dolly so that any lettering on the graphic is always legible to the proctor via the camera monitor, and the X in the center of the graphic is always within the circle on the camera viewfinder. The third part of the objective is the reverse of the second. The same focus and framing criteria hold true- The student will accomplish these objectives within two minutes with no errors.

Given a graphic twenty feet long by three feet high with an eighteen foot narrow line centered on the graphic, the student will demonstrate his ability to truck the camera on a two-inch lens. The student will position his camera at either end of the graphic and focus the camera on the line with the end of the line within the circle on the center of the camera viewfinder. The student will then truck to the opposite end of the graphic without letting the line on the graphic move above or below the top or bottom of the circle on the viewfinder. The student will stop at the far end of the graphic when the end of the line is within the circle on his viewfinder. He will then truck to the opposite direction using the same criteria. The student will accomplish this objective within one minute.

The student will demonstrate to the proctor that he can:

a. Identify the tally lights.
b. Adjust the panning handle.
c. Adjust the contrast and brightness on viewfinder.
d. Adjust position of pedestal base.
e. Adjust cradle head for smooth pan and tilt
f. Accomplish pan left and pan right.
g. Accomplish tilt up and tilt down.
h. Ready counterbalanced pedestal mount for operation. (Unlock locking pin and adjust the tension ring.)

i. Accomplish pedestal up and pedestal down with a counterbalanced pedestal mount.
j. Uncap and cap the camera electronically and manually.

The proctor shall read each of the above numbered items aloud and the student must correctly accomplish the task according to the demonstrations in the video tapes and information provided in the guidebook. No time limit is prescribed for these objectives, but the student must start each task immediately after the proctor states it and completes it with no undue delay.

Objectives for Switcher

The student will demonstrate his understanding of, and ability to use, the switcher by correctly responding on the switcher to oral cues given by the proctor. Preparatory commands will be given followed by the command or cue itself. The proctor will give these cues from a prepared script and will include:

a. Fade in from black to camera.
b. Takes from camera to camera.
c. Takes from camera to film chain and back to camera.
d. Dissolves from camera to camera.
e. Dissolves from camera to film chain and back to camera.
f. Super of film chain over a camera and then back to camera.
g. Fade to black.

The student's response to all of the verbal cues must be immediate and correct according to the demonstrations on the video tape and information provided in the guidebook.

Objectives for the Film Chain

. Starting with the film chain set for "slide projection," the student will thread the film chain film projector and project, via the film chain monitor, a 30-second motion picture film. There can be no loss of a loop (causing film flutter on the monitor), the sound must be in sync with the picture, the picture cannot show frame lines, and the film must not be projected upside down nor backward. This must all be accomplished in 2 minutes.

. Starting with the film chain set for "film projection," the student must load the film chain slide projector and project via the film chain monitor, a series of ten slides. The slides must be projected in the predetermined order marked on the slides (e.g., A - J) and not be projected upside down nor backward. This must be accomplished in 1 minute 30 seconds.

Objectives for Floor Director

The student will be able to identify and demonstrate the 12 basic hand signals employed by floor directors and state where (location in the studio) they should be given, as demonstrated in the video tapes and guidebook.

Implications for Future Research

The present study establishes baseline data in the form of mean pre- and post-test scores, and their comparison, for two methods of instruction. If the mediated method of instruction is implemented in the Department of Television and Radio curriculum (and expanded to include hands-on experience and hands-on testing), longitudinal studies should be conducted to determine effectiveness with many groups over a longer period of time.

It is also important that other instructional units, both in this field and others, be systematically developed and evaluated. These efforts will provide additional baseline data for future comparisons.

Instructional Development projects should be documented using the case study research method. Case studies of this kind should enable future project developers to reduce the time needed for a systematically developed project. Although each project will have its own unique characteristics, there ll undoubtedly be many common difficulties. It is these fficulties which potential readers of documented case udies should then be able to avoid.

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APPENDICES

APPENDIX A

POST-TEST

WILLARD TV TEST II

__________________ _______________ ______________
(Last Name) (First) (Middle)

____
(MSU Student #)

Undergraduate ___ (Yr.___) Graduate ___ (Yr.___) Special ________________
(Explain on back)

Major ________________________ Minor _________________

Course Number ___________ Term/Year _______________

Have you had any previous television <u>Production</u> courses? Yes ___ No ___

If yes, briefly state what skills were taught. ______________________

____

____

____

Have you worked with television equipment before? Yes ___ No ___

If yes, please state what kind and where. __________________________

____

____

____

In the following, provide the information asked for (e.g., question 1), provide the correct term(s) for the definitions (e.g., question 2), or fill in the blanks (e.g., question 3). A single blank or space (i.e., ____________) does not necessarily mean only one word or term is required.

State the name of the device used to control the studio lights.

____

Move the entire camera unit in a direction perpendicular to that in which the lens is pointing: __________________________.

To direct the pedestal to the right, the _______________________ is turned to the ___________________.

Raising the pedestal is called __________________________, and lowering it is called ____________________________.

The _________________ is the tool or aid that specifies what words, pictures, sounds and actions should occur in a program, and how long each individual part of the program should last.

In the control room, the _____________ monitor show the picture that is actually being sent to the transmitter or the video tape recorder.

State what a television camera viewfinder is (technically) and where it is located.

(a) ______________________________ (b) ______________________________

The television synonym for rotating lenses on a camera is

____.

Motion picture film and slides are shown through projectors that are part of the unit called ____________________________.

With too little drag or tension on the moving parts of the pan and tilt head, the camera body has a tendency to _______________________.

11. The brightness and contrast controls on a TV camera affect only the picture on the ____________________.

12. To pre-set the focus of a zoom lens on a black and white studio floor camera like those used at MSU's Closed Circuit Television, one first zooms __________ and adjusts the _________ focus, then zooms ________ and adjusts the ___________ focus.

13. When not in use, the counterbalanced pedestal is locked down by the ________________________.

14. After the desired lens is racked into position, the cameraman must _______________ it to get it ready for the director to use.

15. The cameraman may feel free to adjust how many knobs on the pan and tilt head? _________

16. By rotating the locking grip, it is possible to adjust the ___________ of the panning handle.

17. When a lens is improperly racked, you will have a(n) _________________ picture in your viewfinder.

18. How many size lenses will a lens cap fit? _______

19. Arrangement of mirrors or prisms, used to direct the beams from several projectors (film or slide) into a single TV camera: _________________.

20. Maintaining the counterbalanced pedestal at any desired height is accomplished by using the ____________________.

21. The cameraman controls the aim of the camera with the _________________________.

22. One of the advantages of a zoom lens is that it allows the cameraman to vary the image size without __________________________________ _________________________.

23. The cameras that students will be using in TR courses should never be aimed at a light in order to avoid ____________________.

24. An instantaneous change from one TV picture to another is a(n) ____________________.

25. Why keep the lens capped when the camera is not in use?

____

26. When a camera is left unattended the lens must be (a) __________ and the pan and tilt head left in the (b) ______________ position.

27. All performers appearing in a television productin are referred to as ______________.

28. To maintain control of the camera body when moving the entire unit, always keep a hand on the ______________________.

29. Aiming the camera from side to side: ______________.

30. By turning the crank on the crank type pedestal mount, the camera body may be ________________ or ________________.

31. A multiplexer is a component of the unit called ______________.

32. The purpose of the pedestal mount is to enable the cameraman to

____.

33. Before actual production in the studio can begin, the studio must be prepared, or in TV parlance, it must be ________________.

34. The common slide size used in TV production is (a) ________mm. or (b) _____" X _____". [Answer one: (a) or (b).]

35. What is different about the zoom lens mounting on a Sarkes Tarzian camera than on most cameras? ______________________________________

______________________________________.

36. State the name and location of the apparatus on which the majority of the TV studio lights are mounted.

(a) ______________________________ (b) ______________________________

37. All the equipment and props which were used in the studio must be properly disconnected, dismantled, and put away after the production is finished. This activity in television is called a(n) ____________ or ____________ ing the studio.

38. Identify the two basic lens configurations used in television.

(a) ______________________________ (b) ______________________________

39. The type of camera mount that allows easy vertical movement, beyond just tilting, is the __________________.

40. By engaging _______________ the position of the pedestal base may be changed in order to line it up in any desired direction.

41. A lens that can make a "far" object appear to move continuously closer and a "close" object continuously farther away is a(n) _______________ lens.

42. One picture fades out as another picture fades in: __________________.

43. Name the primary means of communicating to the crew in the studio that is available to the director while a program is being taped or aired.

____

44. To re-focus a TV camera on an object that has moved farther away from the camera, turn the focus knob in a(n) _____________ direction; if the object moves closer, turn the focus knob in a(n) ______________ direction.

45. Coordination and control of all elements of the production when taping or broadcasting live is the responsibility of the ________________.

46. The ________________ inform(s) everyone in the studio which camera is on the air.

47. Syncronized steering of all three wheels on the pedestal mount is called ________________.

48. The common size film used in TV production: ____________.

49. Move the entire camera unit in the same direction as the lens is pointed: ________________________.

50. The following calls for the direction the zoom control is manipulated.

    To zoom in __________ the zoom control.

    To zoom out __________ the zoom control.

51. The purpose of the ______________ is to enable the cameraman to re-position the entire camera unit.

52. Aiming the camera up or down: ________________.

53. When moving the camera closer to a stationary subject, in order to maintain sharp focus the cameraman must turn the focus knob in a ________________ direction.

54. Standard lenses are mounted on a ______________ which can be rotated.

55. Too much drag or tension on the moving parts of the pan and tilt head may produce a ____________ type of picture when panning or tilting.

56. The two, and only two, controls the student cameraman is allowed to use to adjust his viewfinder are the __________ and __________ controls.

57. When giving cues as a floor director during camera rehearsal and performance, you should always station yourself where ________________________________ is facing or looking.

B. *Define the*

1. Ann. o
2. Aspect
3. Black:
4. Burn-ir
5. Close-u
6. Cover s
7. Cut: _
8. Dimmer
9. Essent
10. Feed:
11. Follow
12. Group
13. Image-
14. Light
15. Pick-u
16. POT:
17. Produc
18. Set:
19. Super:
20. Take-u
21. Taking
22. Vidico

B. Define the following terms:

1. Ann. or Anncr.: ______
2. Aspect ratio: ______
3. Black: ______
4. Burn-in: ______
5. Close-up: ______
6. Cover shot: ______
7. Cut: ______
8. Dimmer: ______
9. Essential area: ______
10. Feed: ______
11. Follow focus: ______
12. Group shot: ______
13. Image-orthicon: ______
14. Light level: ______
15. Pick-up tube: ______
16. POT: ______
17. Producer: ______
18. Set: ______
19. Super: ______
20. Take-up reel: ______
21. Taking position: ______
22. Vidicon: ______

C. Answer

State
and a p

1. (a)

2. (a)

3. (a)

4. (a)

5. (a)

6. (a)

7. (a)

Note: If you

C. Answer the following by writing the answer in the space(s) provided.

State the seven basic members or crew positions of a TV production crew and a primary responsibility of each. (Do not include assistants.)

	Crew Position	A Primary Responsibility
1.	(a) ______	(b) ______
2.	(a) ______	(b) ______
3.	(a) ______	(b) ______
4.	(a) ______	(b) ______
5.	(a) ______	(b) ______
6.	(a) ______	(b) ______
7.	(a) ______	(b) ______

Note: If you need additional space, use the back of this page.

D. In this
tion for
the host

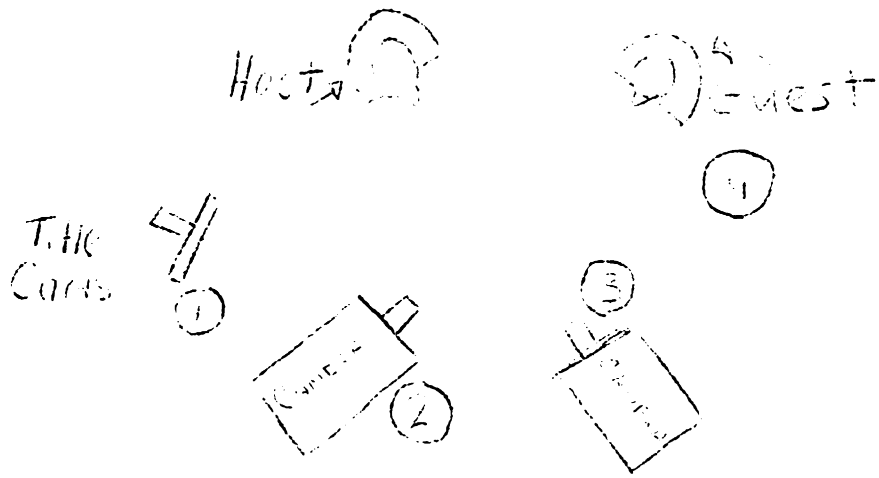
E. Identif

1.

5.

D. In this interview set-up, select the number that indicates the best position for the Floor Director at the opening of the show in order to cue the host:

____

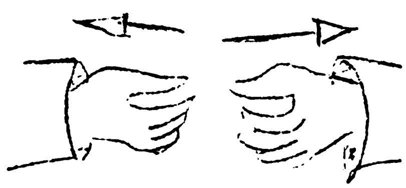
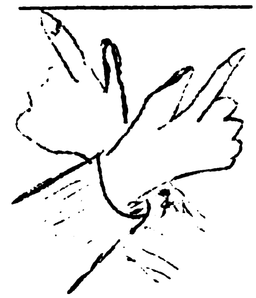


E. Identify these hand signals as used in television:

PERFORMER




1. __________ 2. __________ 3. __________ 4. __________

5. __________ 6. __________ 7. __________

F. In the c
items ir

1. ___

2. ___

3. ___

4. ___

1 ___

2 ___

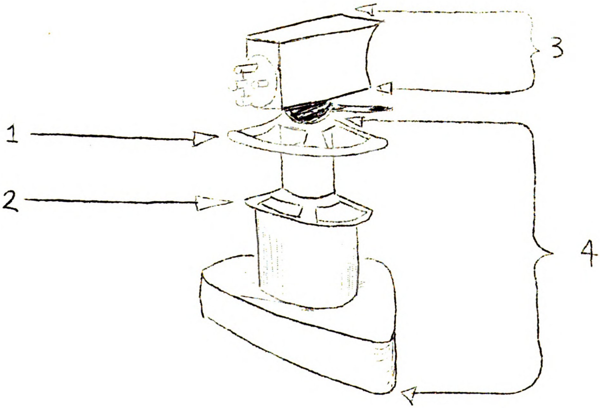
F. In the corresponding numbered spaces, write the name of the numbered items indicated by the arrows.

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________



6. In the cor
items indi
used only

1. ______
2. ______
3. ______
4. ______
5. ______
6. ______
7. ______

G. In the corresponding numbered spaces, write the name of the numbered items indicated by the arrows. The camera and mount are the types used only at CCTV.

1. ____________________

2. ____________________

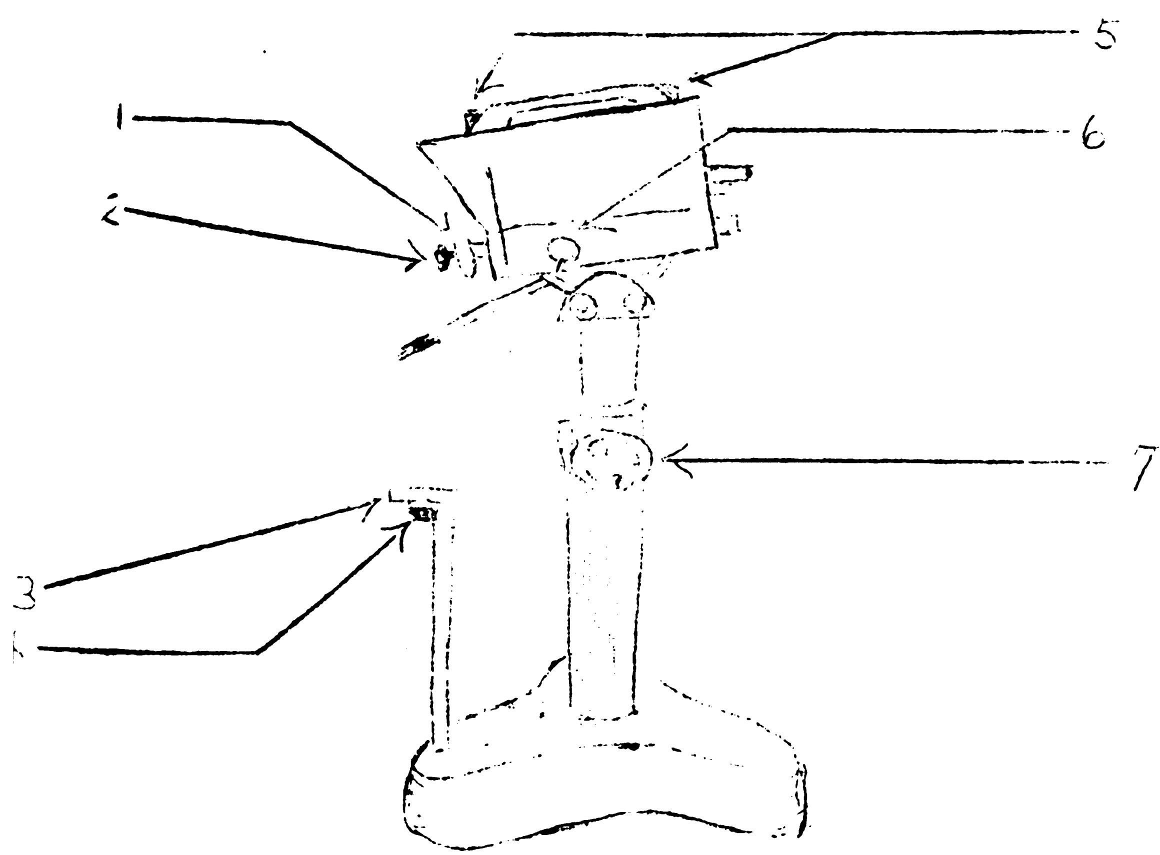
3. ____________________

4. ____________________

5. ____________________

6. ____________________

7. ____________________



H. In the co
the name

1. ______

2. ______

3. ______

4. ______

5. ______

H. In the corresponding numbered spaces on the two drawings below, write the name of the numbered items indicated by the arrows.

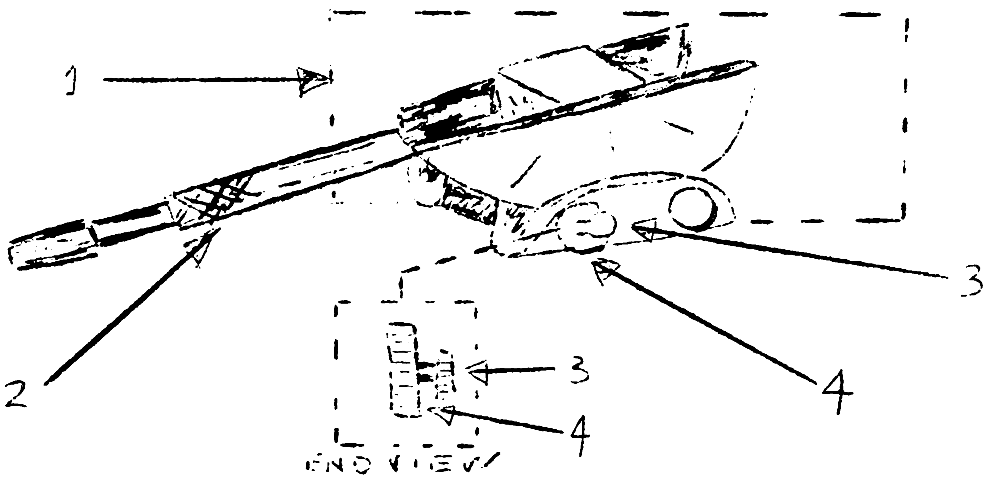
1. ______________________________

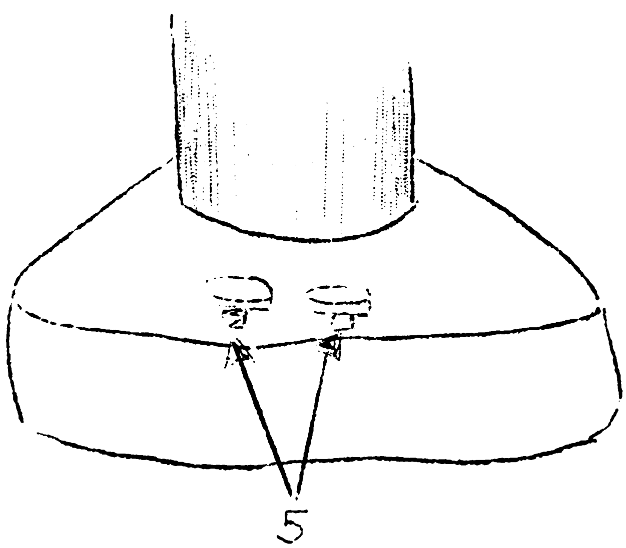
2. ______________________________

3. ______________________________

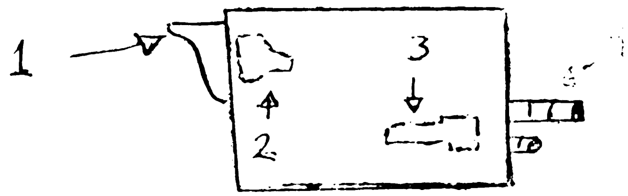
4. ______________________________

5. ______________________________





I. Identify the following:



1. ______________________ 3. ______________________

2. ______________________ 4. ______________________

J. In the corresponding numbered spaces, write the name of the numbered items indicated by the arrows.

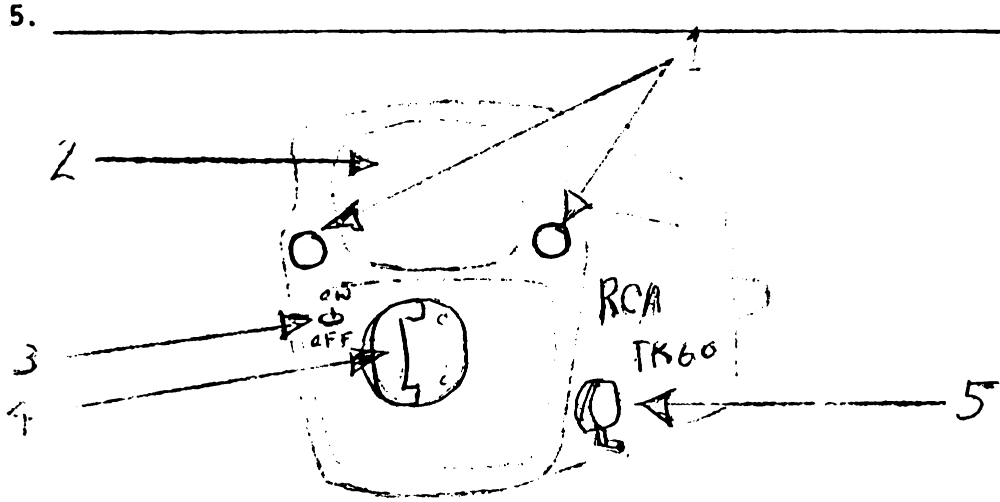
1. ______________________

2. ______________________

3. ______________________

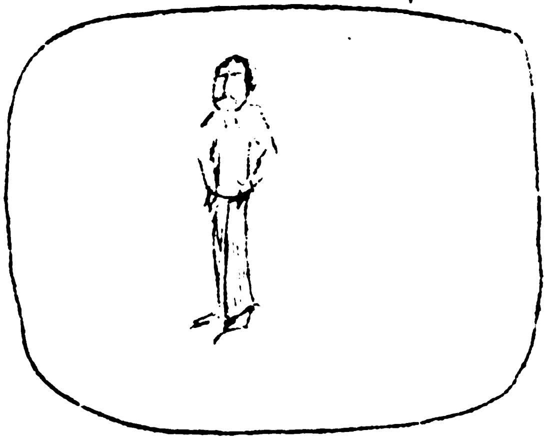
4. ______________________

5. ______________________



K. Put an X on the taking position of the Sarkes Tarzian camera.

L. Assume the following pictures of the same subject were taken with the same TV camera from the same position. Circle the type of lens used for each.



LONG - SHORT
(circle one)

LONG - SHORT
(circle one)

M. What camera movements and their direction would be called for to center the head in the TV screen?

1. ______________________________

-or-

2. ______________________________

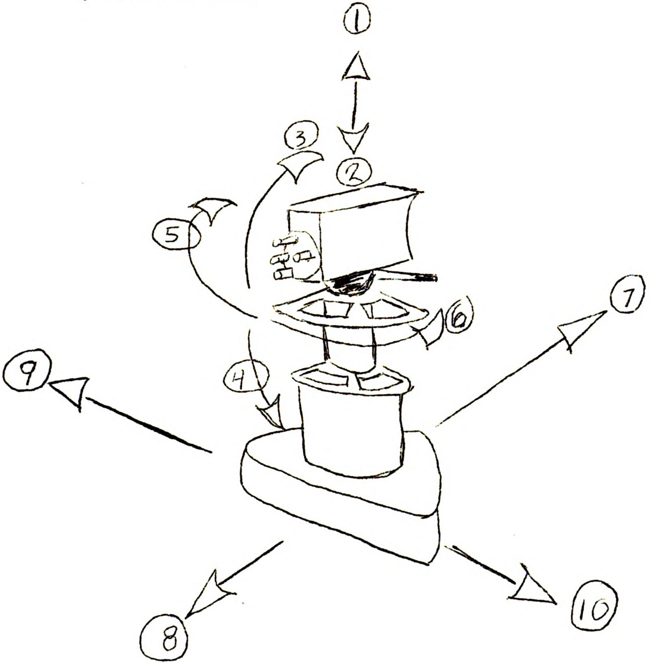
N. Which camera movements and their direction would be called for to center the head in the TV screen?

1. ______________________________

-or-

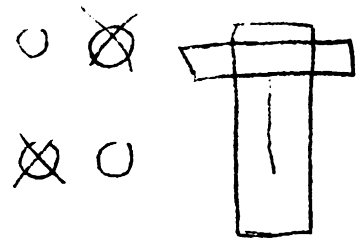
2. ______________________________

0. Using the spaces below the drawing, name the camera movements indicated by the numbered arrows.

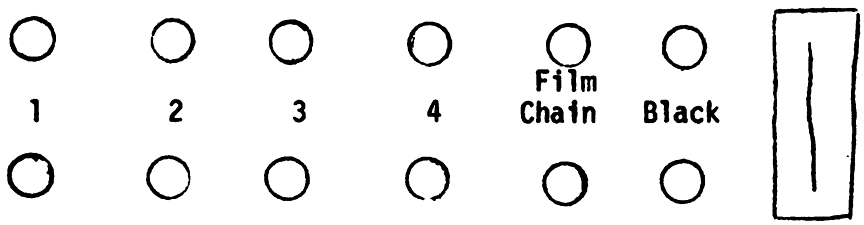


1. ______________________ 6. ______________________
2. ______________________ 7. ______________________
3. ______________________ 8. ______________________
4. ______________________ 9. ______________________
5. ______________________ 10. ______________________

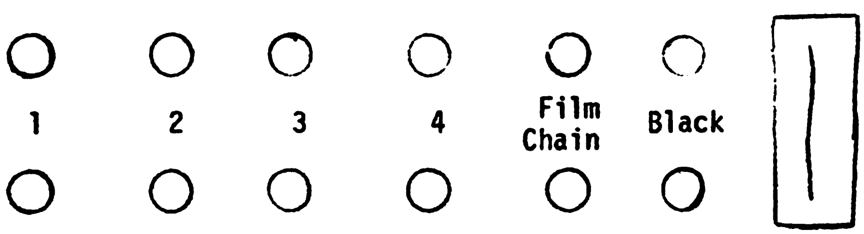
P. In the following questions, you are to draw in the appropriate positions for the fader handles (see example at right), and put an X (X) on button(s) to be depressed.



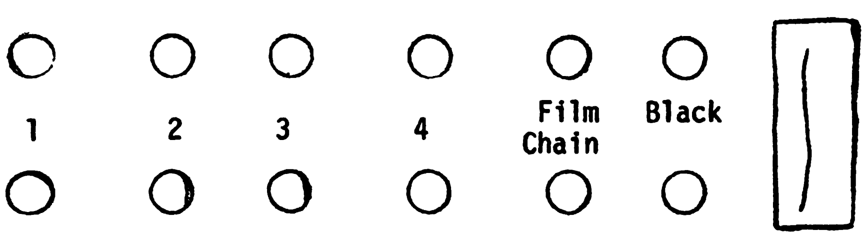
1. Put camera 1 on the air.



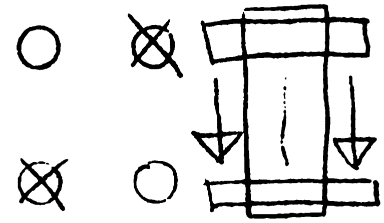
2. Starting with your answer above, take 2.



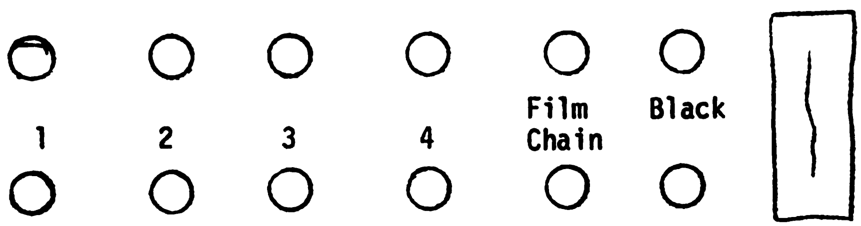
3. Super camera 1 and camera 2.



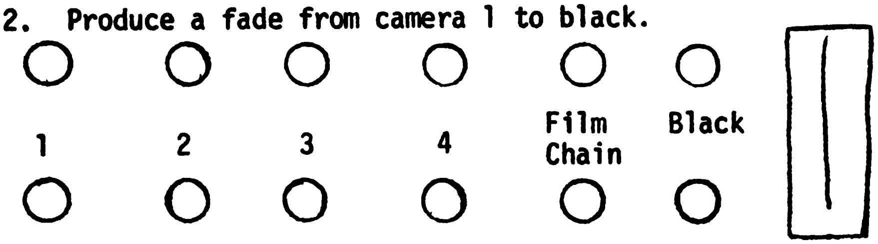
Q. In the following questions, draw the initial position of the fader handles and the final position, with arrows showing the direction of movement, and put an X on button(s) to be depressed. (See example at right.)



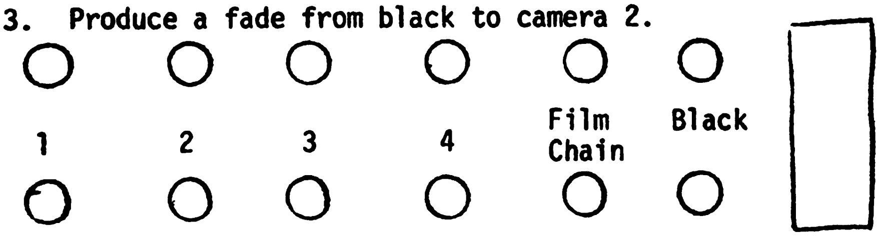
1. Produce a dissolve from camera 2 to camera 1.



2. Produce a fade from camera 1 to black.



3. Produce a fade from black to camera 2.



WILLARD II

A. How long did it take you to complete the test? _______ hrs. ______ min.

B. During the preceding test, were you sure of your answers, unsure, or somewhere in between? Please indicate with an X on the following scale how you felt on the majority of those questions you answered.

SURE ______ ______ ______ ______ ______ ______ UNSURE

COMMENTS:

If you did not understand any of the directions or questions please note that in the space below and on the back of this sheet. If you have any comments or suggestions about a test of this kind, please write those down as well.

APPENDIX B

SCRIPT: VIDEO TAPE SEGMENT ONE
("Control Room")

CONTROL ROOM - Tape I

VIDEO		AUDIO
FADE IN SLIDE. DISSOLVE THROUGH SERIES OF SIX SLIDES TAKEN DURING THE PRODUCTION OF THESE PROGRAMS. ROLL CREDITS OVER SLIDES. WHEN CREDITS FINISH...		(FADE IN MUSIC WHILE STILL IN BLACK)
FADE TO BLACK		(FADE MUSIC OUT)
		DIRECTOR: Ready test and tone. ...Test and tone.
TEST/SHADING BARS		(TONE)
		Ready camera one on the slate.
CU - SLATE		Take one!
		Ready to take black...ready tone out. Take black - Tone out.
BLACK		(TONE OUT)
		Give him a stand-by. Pre-set effects cameras two and four. Ready to fade up on effects.
FADE IN COVER SHOT - T.V. STUDIO - WITH SUPER "CONTROL ROOM" OVER		...Up on effects.
		Ready mic. Ready to cue him in. Ready to dissolve to camera two.
ANNOUNCER walks into SHOT. FADE SUPER		Mic...cue...dissolve.
ANNCR. ON CAMERA	ANNCR:	The purpose of this program and those which follow is to enable you to become sufficiently knowledgeable of certain aspects of television production. You will be able to identify and define the important components of television production, and have an understanding of the

-MORE-

VIDEO	AUDIO
	basic television crew and their responsibilities. You will have a working knowledge of television terminology, and you will be able to identify and operate some of the production equipment. Additionally, you will see the various crew members at work and observe their equipment in operation.
PAN TO CONTROL ROOM	First, the basic control room
SLIDE: COVER - CONTROL ROOM	crew.
SUPER: DIRECTOR,	They are: the director, the
SWITCHER	switcher...
PROJECTIONIST	the projectionist...
AUDIO MAN	and the audio man. (PAUSE)
SLIDE: CU OF DIRECTOR	During a television production,
SUPER: "DIRECTOR"	the director is the boss because he coordinates the activities and efforts of all the other crew members.
SLIDE: DIRECTOR & CONTROL RM.	In fact, the coordination and control of all elements of the
SLIDE: DIRECTOR & CONTROL RM.	production, either when taping

	ANNCR: or broadcasting live, is the primary responsibility of the director.
SLIDE: CU - DIRECTOR TALKING ON HEADSET	As you will soon see, the director and certain other crew members
SUPER: HEADSET (INTERCOM)	wear headsets. This intercom system is the director's most important communication aid.
SLIDE: CU - DIRECTOR LOOKING AT SCRIPT	Another important tool used by the director is his script.
SLIDE: CU - SCRIPT	The correct form for script
SUPER: "SCRIPT"	writing is shown in your guidebook, and you will be responsible for knowing this form.
	The script specifies what words, pictures, sounds and actions should occur in the program. It indicates when they should occur, and how long each individual part of the program should last.

VIDEO	AUDIO
SLIDE: 2 SHOT - DIRECTOR AND CLOCK	This special clock lets the director keep track of elapsed time. By
SLIDE: CU - CLOCK	using the script and the clock
SUPER: ELAPSED TIME CLOCK	together, the director can give instructions when necessary to speed things up or slow them down.
SLIDE: COVER - DIRECTOR AND MONITORS	Here in the control room, the director has a bank of television
SLIDE: MONITORS	sets called monitors. There is a monitor connected to each video source. The video source monitors allow the director to see what pictures are available to him so he can select the one he wants to go over the air next.
SLIDE: CU - LINE MONITOR	In addition to the source
SUPER: LINE MONITOR	monitors, there is a line monitor which shows the director the
SLIDE: PATCH FIELD	picture that is actually being sent down the line, either to the
SLIDE: TOWER	transmitter if the program is

-MORE-

VIDEO		AUDIO
	ANNCR:	being broadcast live, or to the
SLIDE: TAPE MACHINE		videotape machine, if the program is being taped ahead of time.
ANNCR. ON CAMERA		Either a single source, or a mixture of sources can be fed to the line at one time. A mixture is called superimposition or
ANNCR. POINTS DOWN AT SUPER		super. (POINTS TO SUPER) That's
SUPER: SUPER		what these are. (PAUSE) The
SUPER: MS - ANNCR. AND LS - ANNCR.		picture you are now looking at is also a super.
MS - ANNCR.		The instantaneous changing from one picture to another is called a "take" - such as you're now seeing.
TAKE LS ANNCR. TAKE MS ANNCR.		A smoother transition from one shot to another--where one picture disappears as another
DISSOLVE TO LS ANNCR		appears to take its place--as
DISSOLVE TO MS ANNCR		is now being demonstrated--is called a dissolve. A one-sided dissolve, where a second picture

-MORE_

VIDEO	AUDIO
	ANNCR: does not appear is called a fade --or fade to black.
FADE TO BLACK	...Hey, bring me back!!
FADE IN MS OF ANNCR.	It gets dark in there! (PAUSE) You are now able to see me because I was faded-in--or dissolved from black to picture.
MS - ANNCR.	To accomplish this, the television control room has a piece of equipment called a video switcher
SLIDE: CU - SWITCHER	or mixer. (PAUSE) Your guidebook
SUPER: VIDEO SWITCHER	has instructions and examples to show you how the video switcher operates. Be sure you absorb that information.
SLIDE: 3 SHOT - DIRECTOR, T.D., VIDEO SWITCHER	The crew member responsible for operating the video switcher is sometimes called the technical
SLIDE: CU - T.D.'s HANDS OPERATING SWITCHER	director or T.D., but usually he is simply referred to as the
SUPER: T.D. OR SWITCHER	"switcher." His primary responsibility is to operate the electronic switcher on command from the director.

-MORE-

VIDEO	AUDIO
SLIDE: CU - FILM MONITOR W/ LABEL	There is also a separate monitor labeled "film" which is short for film and slide chain monitor.
SLIDE: COVER - FILM CHAIN SUPER: FILM CHAIN 1. TV CAMERA 2. FILM PROJECTOR 3. SLIDE PROJECTOR 4. MULTIPLEXER	The equipment which allows motion picture film as well as slides to be projected on television is called a film/slide chain, commonly referred to as the "film chain." This film chain consists of 4 pieces of equipment---or components: a small television camera, a projector for showing motion picture film, a slide projector, and a system of mirror and prisms, called a multiplexer.
SLIDE: MULTIPLEXER	The multiplexer aims the picture coming either from the
SLIDE: FILM PROJECTOR	motion picture projector
SLIDE: SLIDE PROJECTOR	(PAUSE) or the slide projector (PAUSE) directly into the lens
SLIDE: TELEVISION CAMERA	of the small television camera. (PAUSE)

VIDEO	AUDIO
	ANNCR: The picture then appears on the
SLIDE: FILM CHAIN MONITOR	film chain monitor and it can be switched into the line.
SLIDE: REEL OF FILM AND COLLECTION OF SLIDES	The common size motion picture
SUPER: FILM: 16mm	film used in TV is 16mm, while
CS - FILM AND SLIDES	the common slide used is 35mm
SUPER: 35mm - 2" x 2"	or 2 inch by 2 inch.
SLIDE - COVER - PROJECTIONIST AT WORK	The person in charge of the film chain during production is called
SUPER: PROJECTIONIST	the projectionist. The primary responsibility of the projectionist is to make sure that the correct film and slides
SLIDE: CU - PROJECTIONIST LOADING FILM AND SLIDES	are loaded into the projectors properly and are ready for use when the director wants them, or when the script calls for them.
BATCH OF UPSIDEDOWN OR SIDEWAYS SLIDES	Not like this...
FILM RUNNING BACKWARDS	Or this...
SLIDES RIGHT SIDE UP	But like this...
FILM RUNNING CORRECTLY	Or this...

-MORE-

VIDEO	AUDIO
SLIDE: FS - PROJECTIONIST REWINDING FILM	When the production is completed, the projectionist must rewind the motion picture film and unload the slides.
SLIDE: AUDIO MAN AT WORK SUPER: AUDIO MAN SLIDE - CU - AUDIO MAN'S HANDS ADJUSTING POTS	The remaining control room crew member is the audio man. The audio man controls the sound portion of the program. It's his primary responsibility to see that the right sound at the proper level accompanies whatever picture is being fed to the line.
SLIDE: CU - AUDIO BOARD	You have already learned how to operate an audio board in your radio course. Therefore, you will be required to exhibit that knowledge during your course work.
SLIDE: AUDIO MAN SETTING UP SLIDE: CU - AUDIO PLUG AND SOCKET	Before the production begins, the audio man is responsible for setting up the studio microphones and testing them.

-MORE-

VIDEO	AUDIO
SLIDE: CU - SCRIPT W/AUDIO CUES	During an actual production, one of the audio man's most
SLIDE: ECU - DETAIL OF SCRIPT	important tools is the script. In some productions, the audio man will take all of his cues and instructions from the director.
SLIDE: 2 SHOT - AUDIO MAN AND DIRECTOR CONFERRING	However, in other cases, the audio man will be expected to take all of his cues directly from his copy of the script. In either case, the director must specify ahead of time which procedure the audio man should follow.
SLIDE: COVER - STRIKING MICS	When the production is completed, the audio man is responsible for disconnecting the microphones and their cables and returning them to the storage area.
ANNCR. ON CAMERA	These, then, are the key people who work in the television control
SUPER: DIRECTOR, SWITCHER PROJECTIONIST, AUDIO MAN	room: the director, the switcher, the projectionist and the audio man.
FADE TO BLACK	

END - PART ONE
TIME: 9:20

APPENDIX C

SCRIPT: VIDEO TAPE SEGMENT TWO
("Television Studio")

TELEVISION STUDIO - Tape II

VIDEO	AUDIO
SUPER: "TELEVISION STUDIO" OVER... CS - ANNCR., CAMERA, FLOOR DIRECTOR - TV STUDIO IN B.G. Floor director is adjusting Anncr's mic and explaining hand signals. Floor director steps back to camera and cues Anncr.	
MS - ANNCR.	ANNCR: The television studio is where all the live action portion of a television program takes place. The performers
CS - ANNCR/STUDIO	appearing in a television production are all referred to as talent. Obviously, the talent is an important factor in determining the success or failure of a television program,
MS - PAN - AS ANNCR. WALKS TO "BACKSTAGE" AREA	but for our purposes here, they are not considered to be members of the actual production crew.
COVERSHOT: CREW, TALENT IN STUDIO SUPER: LIGHTING DIRECTOR	The basic studio crew is made up of: the lighting director, the
CAMERAMAN	cameraman, and the
FLOOR DIRECTOR	floor director.

-MORE-

VIDEO	AUDIO
ANNCR. ON CAMERA	ANNCR: Before actual production in the studio can begin, the studio must be prepared, or, in TV
SUPER: SET UP	parlance, "set up." This means the placing of lights and microphones, erecting flats and dressing the set. (PAUSE)
MCU - CAMERA AND CAMERAMAN	To enable a camera to obtain any sort of picture, there has to be light.
SLIDE: COVER OF GRID W/LIGHTS	A metal frame--or tracks--called
SUPER: GRID	the lighting grid, is attached to the studio ceiling on which the studio lights are mounted.
MAN ON LADDER HANGING LIGHTS	In a television studio, the person responsible for seeing that there is the right amount and type of light is the
SUPER: LIGHTING DIRECTOR	lighting director. Often, he may also be the floor director, a cameraman, or even the director.

-MORE-

VIDEO	AUDIO
SLIDE: COVER OF LIGHT BOARD	The lights in this studio are operated from within the control
SUPER: LIGHTING CONTROL BOARD	room by means of a lighting control board. You will learn
ANNCR: ON CAMERA	much more about lighting in your course work, but for now, you should know that the lighting director's job is to select the specific lighting instruments needed for the show and arrange them properly on the grid.
COVER SHOT: CAMERMAN AND STUDIO w/TALENT DOING BITS OF BUSINESS	The television cameraman's basic responsibility is to get whatever picture or shot the
SUPER: CAMERAMAN	director wants, and to have the picture ready when the director needs it. The cameramen receive their instructions from the director over their headsets.
	Good camera work, of course, takes practice. It requires knowing what constitutes good

-MORE-

VIDEO	AUDIO
	ANNCR: picture composition, and above all, plenty of careful, alert thinking.
ANNCR. ON CAMERA	Your production course work will teach you the basics of camera operation and picture composition, but the careful thinking must come from you.
COVER - FLOOR DIRECTOR TALKING W/TALENT SUPER: FLOOR DIRECTOR	Although the floor director does not actually operate any specific piece of equipment, it is important for you to recognize that his role in a television production is vital. The floor director is the director's representative in the studio.
FLOOR DIRECTOR W/TALENT	The floor director must explain to the talent what is happening and what is expected of them. If there are delays or technical problems, the floor director should keep the talent carefully informed so they won't

-MORE-

VIDEO	AUDIO
	ANNCR: become confused or worried. In relaying the director's instructions to the talent, the floor director must be both precise and diplomatic.
HEADSHOT: FLOOR DIRECTOR W/HEADSET	DIRECTOR: (WITH HARSH, SHARP TONE) "Floor director, tell superstar he's rustling those goddamn papers again. I'm not about to put up with that noise again tonight!"
2 SHOT: FLOOR DIRECTOR AND TALENT	FLOOR DIRECTOR: (TO NEWSMAN) "Gary, the control room is picking up noise on your mike when you flip the copy pages. It might be better if you slide them off to one side. Would that cause you any problems?"
CU- TALENT	NEWSMAN: (TO FLOOR DIRECTOR) "Oh, yeah, I'm sorry. No, that'll work out fine. Thanks for reminding me."

-MORE-

VIDEO	AUDIO
ANNCR: ON CAMERA W/SET, FLOOR DIRECTOR, ETC., IN B.G.	ANNCR: When the program is ready to begin and while it is in progress, the floor director's main duty is to relay the director's specific instructions to the talent. Since the floor director can't speak out loud once the studio mikes are on, he has to communicate to the talent by means of a carefully devised system of hand signals or cues. With some minor variations and exceptions at individual stations, the cues you'll see in a minute are used throughout the television industry and are the cues you will be expected to learn and use in your production work here.
PUSH IN TO 3 SHOT - TALENT, F.D. & CAMERA	All hand cues should be made with broad, precise movements so the talent will know exactly what the instruction is.

-MORE-

VIDEO		AUDIO
F.D. WALKS BACK TO CAMERA	ANNCR:	Also, the floor director should stand in a spot where the talent can easily see the cue without having to interrupt what he is doing, or otherwise make a noticeable effort to see the cue.
		Let's see the cues from the talent's point of view.
WAIST SHOT - FLOOR DIRECTOR W/CAMERA BESIDE HIM - TALENT'S POINT OF VIEW		When the program is about to begin, the director over his headset will give the command ..."Stand by." Here in the studio, the floor director will repeat that command loud enough for everyone to hear. (PAUSE)
F.D. DEMONSTRATES ACCORDING TO AUDIO	F.D.:	"Stand by."
ANNCR. ON CAMERA	ANNCR:	Stand by is the cue that alerts everyone that the production is about to begin, which means that the studio is about to go live.

VIDEO	AUDIO
	ANNCR: At the same time, the floor director raises one arm over his head with his finger pointing towards the ceiling. With his other hand, he points to the camera that will be going on the air.
WAIST SHOT F.D. FROM TALENT'S POINT OF VIEW	When the director says, "Cue him," the floor director swings his arm down sharply and points directly at the talent.
SUPER: ACTION CUE	This is called the "action cue" which signals the talent to begin.
F.D. DEMONSTRATES ACCORDING TO AUDIO (ALL DEMOS FROM TALENT'S POINT OF VIEW)	If, during the program, time is running out or the talent is speaking too slowly, the floor director can give him the
SUPER: SPEED UP	speed-up cue. Like this... The speed of the floor director's rotating hand indicates to the talent how fast he should increase his speed.

-MORE-

VIDEO	AUDIO
	ANNCR: If, on the other hand, the talent is going too fast, or for some reason has to fill extra time, the floor director gives him the slow-down, or
SUPER: STRETCH	stretch, cue. It might help to imagine you're pulling a piece of taffy or stretching a rubber band.
ANNCR. ON CAMERA	The floor director also gives time cues which tell the talent how much time is left before he must stop. Depending on the length of the program, various time cues will be given to indicate the time remaining. Normally, the first time cue is given at five minutes before the end, and from then on at
ANNCR. HOLDS UP CARDS W/TIME CUES	one minute intervals. Some stations use cue cards with a time number written on each one.

VIDEO	AUDIO
	ANNCR: For this course, however, hand cues will be used.
WAIST SHOT - F.D.	Here are the cues; again, from the talent's point of view.
F.D. DEMONSTRATES ACCORDING TO AUDIO	5 minutes... 4 minutes... 3 minutes... 2 minutes... 1 minute...
ANNCR. ON CAMERA	As the end of the program nears, time cues become more critical. The floor director will also therefore give a thirty second and a fifteen second cue.
F.D. DEMONSTRATES ACCORDING TO AUDIO SUPER: 30 SECONDS	The thirty second time cue is given by crossing the arms at the wrists, with the fingers extended straight out. At precisely thirty seconds, the arms in this position are moved sharply towards the talent.

-MORE-

VIDEO		AUDIO
SUPER: 15 SECONDS	ANNCR:	At fifteen seconds, the floor director makes a broad grasping motion with one fist in the direction of the talent.
SUPER: CUT		If necessary, a "cut" cue can be given to tell the talent to stop immediately. This cue is given by pulling the index finger across the throat in a knife-like motion. Sometimes this movement is accompanied by an appropriate grimace or look of panic.
NCR: "BACKSTAGE"		Once the production is completed the floor director must see that all the equipment and props which were used in the studio are
WITH STRIKE ACTIVITIES		properly disconnected and put away. The common television term for this cleaning-up activity is
: STRIKE STRIKING		called "striking" the studio.

-MORE-

VIDEO	AUDIO
	ANNCR: All crew members help to strike the studio, but it is the floor director's responsibility to see that the studio has, in fact, been left in proper shape for the next production crew to use.
NNCR. ON CAMERA	You have now seen the key people who make up a television
N TO CONTROL ROOM	production crew, and you've seen the pieces of equipment they use.
PER:	In the control room the basic crew is comprised of:
DIRECTOR	the director,
SWITCHER	the switcher,
PROJECTIONIST	the projectionist,
AUDIO MAN	and the audio man. (PAUSE)
MAIN LIGHTS - EQUIPMENT ILHOUETTE R:	In the studio, the crew members are:
LIGHTING DIRECTOR	the lighting director,
CAMERAMAN	the cameraman,
FLOOR DIRECTOR	and the floor director.

-MORE-

VIDEO	AUDIO
	ANNCR: Equally important are the talent and the various technical engineers whose functions will be explored during your production course work.
	It is the combined efforts and coordinated skills of these people, then, whose ultimate product is a television program.
E TO BLACK	

END - PART II
TIME: 5:48

APPENDIX D

SCRIPT: VIDEO TAPE SEGMENT THREE
("Sarkes Tarzian Camera")

SARKES TARZIAN CAMERA - Tape III

VIDEO	AUDIO
AMERA AND STUDIO FLOOR	
OVER: SARKES TARZIAN CAMERA	
CER ENTERS O.C. and es to the camera.	
SLOW ZOOM IN AS:	ANNCR: Obviously, this is a television camera. For the next few minutes, we'd like to describe the various parts of a typical camera and demonstrate a particular type which you will be using in your course work. During your instruction, you will have the opportunity to operate several camera models, and from this
SHOT is now MC	experience you will make an interesting discovery: each
PAN as ANNCR walks to the "BACKSTAGE" area.	camera will have a few specific technical and operational differences, but all are remarkably similar. Once you've become proficient in operating one television camera, most others will pose very little difficulty for you.

-MORE-

VIDEO		AUDIO
CS - CAMERA UNIT	ANNCR:	A camera is actually made up of three main parts. This boxy-looking top part is called the
SUPER: CAMERA BODY		camera body. In simple terms, it makes the electronic television picture.
FS - TILTING DOWN from camera body to head.		The camera body is attached to a swivel which is called a
SUPER: PAN AND TILT HEAD		pan and tilt head which allows the camera body to be panned from side to side, or tilted up and down.
ZOOM OUT TO MS		Finally, there is the
SUPER: CAMERA MOUNT		camera mount which enables the cameraman to actually move the whole unit around from one part of the studio to another. There
CU- CAMERA MOUNT		are many types of camera mounts. This particular one is called a
SUPER: CRANK-TYPE PEDESTAL MOUNT		crank-type pedestal mount.
		We'll learn more about this type of mount later.

-MORE-

VIDEO	AUDIO
CAMERA	ANNCR: Again, the three main parts of a television camera are:
: CAMERA BODY	the camera body...
PAN AND TILT HEAD	the pan and tilt head, and...
CAMERA MOUNT	the camera mount.
ANNOUNCER	Now, what is television? It's the transmission of scenes or moving pictures by conversion of light rays to electrical waves, which are reconverted to reproduce the original image. This means that there are certain components on the camera which the cameraman uses to capture the image.
CU - CAMERA BODY SUPER OVER: OUTLINES OF LENS, PICK-UP TUBE, VIEWFINDER, and VIEWFINDER HOOD	The television camera has a sensitive electronic tube inside of it called the pick-up tube. This tube picks up whatever picture the lens is seeing and converts that image into electronic signals which appear instantaneously as a picture on the viewfinder.

-MORE-

VIDEO	AUDIO
ANNCR.	ANNCR: To protect the pick-up tube, there are three important things to remember when using the cameras available to you during your lab and course work. First, never aim a camera too long at a stationary object-- especially something with high
PE IN SUPERS AS THEY ARE NTIONED	contrast--because electronic damage, commonly referred to as
UPER: AVOID BURN-IN	burn-in, can occur. Second, never aim a camera at a
SUPER: DON'T SHOOT LIGHTS	light as this could permanently damage the sensitive and expensive pick-up tube. Finally, always obtain
SUPER: GET PERMISSION TO UNCAP	permission from the studio engineer before uncapping your camera.
MS - FROM IN FRONT OF CAMERA	To protect the pick-up tube from
CAMERAMAN walks in.	light when the camera is not
CU - TURRET & LENSES SUPER: 9 O'CLOCK (OVER THE TAKING LENS)	being used, this lens is always capped.

VIDEO	AUDIO
NS ASSEMBLY - showing capped lens	The lens cap will only fit one of the lenses.
MS	You'll learn more about that later. For now, it will be sufficient to say that, in order to obtain a picture, the camera must be uncapped.
RAMAN DEMONSTRATES	Remove the cap from the lens--(PAUSE)--and store it here--in
- TOP OF PAN/TILT HEAD	the Pan and Tilt Head.
- VIEWFINDER	(AFTER A PAUSE) The viewfinder on a television camera is located here on the back of the camera.
UPER: VIEWFINDER	The viewfinder is actually a small television screen which shows the cameraman the exact picture his lens is taking.
TILT DOWN TO BRIGHTNESS/ CONTRAST KNOBS	The two--and only two--controls which the cameraman uses to adjust his viewfinder picture on this Sarkes camera are located here on the back of the camera body.

-MORE-

VIDEO	AUDIO
THE KNOBS	ANNCR: As you can see, the knob on the right is labeled "B" for brightness, and the other is marked "C" which is short for contrast.
CAM. VIEWFINDER d enters SHOT, manipulates knobs	Adjusting the brightness and contrast knobs will affect only the picture on the viewfinder. These two controls operate in the same way as the contrast and brightness knobs on a home TV receiver and the cameraman can make adjustments to suit his own particular liking.
CU - VIEWFINDER SUPER: VIEWFINDER HOOD	This metal frame is the viewfinder hood. It acts as a shade to prevent the studio lights from casting a glare on the viewfinder screen.
CU - CAMERAMAN with headset	One of the cameraman's most important tools is his headset. It is necessary to wear the headset at all times when operating a camera.

-MORE-

VIDEO	AUDIO
SLIDE: ECU - GUIDE BOOK in announcer's hands.	Instructions in your guide book will illustrate where and how to plug your headset in.
CU - FRONT OF CAMERA	Since many programs use more than one camera, each is equipped
CS - CAMERA ONLY	with what are known as tally
SUPER: TALLY LIGHTS	lights. On this camera, the tally lights are two red bulbs located at each end of the rod
CAMERA is turned 180 degrees.	on top of the camera.
ZOOM TO ECU - REAR TALLY LIGHT Cameraman points to it ZOOM OUT - TO INCLUDE ENTIRE CAMERA - Tally lights come on.	A third, smaller tally light is located here--directly under the viewfinder. The tally lights on a camera come on automatically telling everyone in the studio when that particular camera is
TALLY LIGHTS OUT -	on the air.
FADE TO BLACK	
FADE IN ON...	
CU - FOCUS KNOB	(PAUSE) To focus a picture, the
Cameraman's hand ENTERS SHOT, points to knob.	cameraman uses this focus knob located on the right side of
SUPER: FOCUS KNOB	the camera. (PAUSE)

VIDEO	AUDIO
OTS SHOT - Cameraman, camera, "A" and "B"	When a cameraman first lines up his camera on a subject, in this case the letter "A", he has to set his initial focus by turning
SUBJECTIVE SHOT - "A" out of focus SPLIT SCREEN Wipe in focus knob	the focus knob until he finds the point of sharpest focus.
TILT UP TO "B"	The cameraman focuses the more
Cameraman's hand turns knob; "B" comes into focus.	distant "B" by rotating the focus knob <u>clockwise</u>.
	Obviously, to bring the closer letter "A" back into focus, things work in the opposite
Camer man's hand turns knob; "A" comes into focus.	direction. By turning the focus knob <u>counterclockwise</u>, "A" now has the sharper focus.
CU - FOCUS KNOB - and cameraman's hand	A good way to remember which way to turn the focus knob is to
Cameraman demonstrates	think in terms of waving goodbye to a distant subject, and beckoning closer for a subject that's nearer to the camera.

-MORE-

VIDEO		AUDIO
MS - CAMERA/CAMERAMAN	ANNCR:	Now, let's take a look at the television camera lenses.
Cameraman turns camera.		(POINTING) This camera has a group of individual lenses mounted on the front of it.
CU - LENS ASSEMBLY		Each of these lenses has a different length, and it is in terms of <u>length in inches</u> that we will refer to these lenses.
Cameraman points out lenses.		For instance, the longest lens in this grouping is called a six-inch lens. (PAUSE)
Rack to one-inch lens.		The shortest one--here--is known as a one-inch lens.
SUBJECTIVE LS - SET SUPER: SHORT LENS - WIDE CU - LENSES - Rack to long lens SUBJECTIVE CU - Set SUPER: Long Lens - Close		A shorter lens will give the cameraman a wider shot of the subject--(PAUSE)--and a longer lens will give the cameraman a closer shot of the same subject without having to move either the camera or the subject.
MS - LENS ASSEMBLY BEGIN ZOOM IN		All four lenses are mounted on this platform which is called a turret.

-MORE-

VIDEO	AUDIO
	ANNCR: This type of lens configuration
SUPER: TURRET LENS ASSEMBLY	is called a turret lens assembly.
	Because only one lens can be used at a time, the cameraman must rotate the entire turret lens assembly--which means that the position of this turret determines which lens is actually taking the picture. As you may already have fathomed, this position is called the
SUPER: TAKING POSITION (9 O'CLOCK)	taking position.
CU - FRONT OF CAMERA	On this particular model, the taking position is located in the left-center of the turret as you face the camera. In this case, the six-inch lens is in
MS - FROM REAR OF CAMERA	the taking position. As I said before, if the cameraman has to use a lens other than the one already in the taking position, he'll have to rotate the turret.

VIDEO	AUDIO
	ANNCR: He does this by means of a grip handle located here on the rear of the camera below the viewfinder.
CU - RACKING HANDLE SUPER: TURRET OR RACKING HANDLE	This handle is called the turret handle or racking handle, and the action of rotating the turret from one lens to another is called--you'll be happy to know--racking.
CU OF NUMBERS	Each of these numbers represents a different lens on the front of the camera. The numbers represent --in inches--the size of the lenses mounted on the front of the camera. This small mark on the rear panel tells the cameraman which lens is in the taking position. In this case, the number six is lined up with the indicator mark, telling us the six-inch lens is in the taking position.

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VIDEO	AUDIO
CU - RACKING HANDLE	ANNCR: To rack to a different lens, the cameraman will grip the turret handle like this, squeeze the
Cameraman demonstrates.	release bar on the inside of the handle gently towards him, and, continuing to squeeze on the release bar, rotate the entire turret handle until the desired
SUBJECTIVE CU - showing an improperly racked image.	number is lined up with the indicator mark. If the lens has not been fully racked, you will have an incomplete picture in your viewfinder.
CU - RACKING HANDLE/ CAMERAMAN'S HAND Demonstrating	The cameraman will also be able to feel that the release bar has not come all the way back out. A slight rotating pressure on the turret handle will tell the cameraman if the lens has been fully racked and correctly locked into place.
MCU - RACKING HANDLE/ CAMERAMAN'S HAND Demonstrating	It's extremely important, when racking from one lens to another,

-MORE-

VIDEO	AUDIO
	ANNCR: to rotate the turret handle gently and to loosen your grip on the release bar slowly and smoothly when the new lens is lined up. A jerky movement which "snaps" the lens into position may do damage to both the turret mechanism and the lens. Racking must be controlled, careful and deliberate.
SUBJECTIVE CS - Out of focus, then focus.	After the cameraman has racked to the desired lens, he must re-focus the picture to get it ready for the director to use
CS - CAMERA UNIT - Cameraman strikes camera and walks out of picture.	on the air. This, then, is what a camera equipped with a turret lens assembly can do.
FADE TO BLACK	
FADE IN AND ESTABLISH CAMERA, THEN ZOOM TO ECU OF ZOOM LENS.	This camera is identical to the one we've just been looking at, except that it is equipped with a special type of lens called
SUPER: ZOOM LENS	a zoom.

-MORE-

VIDEO		AUDIO
CU - LENS ASSEMBLY	ANNCR:	This particular camera is somewhat unique in that it can be set up with a zoom lens and other standard lenses at the
CS - ANNOUNCER W/CAMERA		same time. With most cameras, it's an "either-or" situation; either a zoom lens or a set of
PAN - as Announcer walks "Backstage"		turret-mounted lenses--but not both. The Sarkes camera is an exception. Although you'll be operating both types of lenses in your course work, the zoom lens has become more and more prevalent through the television industry.
OTS - COVER SHOT		The main advantage of a zoom lens is that it lets us vary the image-size without racking lenses; a distant object can be made to appear to move
SUBJECTIVE ZOOM IN DURING PAUSE		continuously closer (PAUSE) and, contrariwise, a close object made to move continuously
SUBJECTIVE ZOOM OUT DURING PAUSE		farther away (PAUSE).

-MORE-

VIDEO	AUDIO
CU - BACK OF CAMERA	ANNCR: (POINTING) Like the other turret lens camera, this particular camera has a racking handle. The zoom
SUPER: ZOOM CONTROL	control is this push-pull rod--
ZOOM TO ECU OF P-P ROD	or plunger--here on the racking handle.
SPLIT SCREEN	
SUBJECTIVE CU - "A" and cameraman's hand on zoom control.	Using again the letter "A" as our subject, notice what happens when the zoom control --or push-pull rod-- is manipulated. Pushing in on
'A' ZOOM AWAY	the zoom control rod "pushes"
Reverse action: 'A' ZOOMS IN	the subject away. Pulling out on the rod "pulls" the subject in closer. The speed of the
Demonstrating	zoom will depend on how fast... or how slow...the cameraman manipulates the zoom control rod.
MS - ANNCR.	Did you notice that throughout the entire zoom range from wide shot to close-up the letter "A" was always in focus?

-MORE-

VIDEO	AUDIO
	ANNCR: This was no accident. Here is how that was achieved.
MS - CAMERA FOCUS KNOB	Just as with the turret-mounted lens configuration, the
Cameraman points to camera focus knob.	cameraman focuses his picture by means of the camera-focusing knob here on the side of the camera. With the zoom lens, however, he must use an additional focusing control.
CU - ZOOM CONTROL	On the Sarkes Tarzian camera, the round knob used to control
Cameraman points	the zoom is also the focus control. Thus, we actually
SUPER: ZOOM FOCUS ZOOM CONTROL	refer to this as the zoom focus <u>and</u> zoom control. Why <u>two</u> focus controls? Because we are thus able to focus on a subject and have it <u>stay</u> in focus whether we zoom in on it or away from it.

-MORE-

VIDEO		AUDIO
MS - ANNCR.	ANNCR:	There are four steps to
SUPERS: (WIPE IN AS CALLED FOR)		remember:
1. ZOOM OUT		First, zoom out.
2. CAMERA FOCUS		Second, set the camera focus.
3. ZOOM IN		Third, zoom in; and
4. ZOOM FOCUS		Fourth, set the zoom focus.
SPLIT SCREEN		To set the camera focus, zoom
SUBJECTIVE CU - 'A'		all the way out to the lens'
WIPE IN CU - CAMERA FOCUS KNOB AND ZOOM CONTROL - Cameraman's hand adjusts control		widest shot...and then rotate the camera focus knob until the subject--the letter "A"--comes into sharp focus. Then, to
Cameraman demonstrates.		set the zoom focus, zoom all the way in to the tightest shot possible of the "A" and then, with the zoom focus control this time, focus again, turning both clockwise and counterclockwise until sharp focus is obtained.
Demonstrates In-Focus Zoom		Once you've set both the camera focus <u>and</u> the zoom focus, your subject will be sharply defined throughout the entire zoom range.

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COVER - CAMERAMAN/ CAMERA	ANNCR: (PAUSE) When striking the camera
Cameraman demos.	--which means shutting it down--
Cameraman strikes the camera and walks out of picture.	rack the appropriate lens into the taking position and replace its cap. (PAUSE)
Announcer walks into picture.	So far, we've seen the viewfinder,
CS - ANNOUNCER/CAMERA Announcer points out the components as he mentions them.	the tally lights, the headset, the focusing controls--as well as the different types of lenses and how they operate. All this relates to what we call the
SUPER: CAMERA BODY	camera body.
Announcer moves o.s. PAN TO CS - CAMERA BODY, and	
FADE TO BLACK	

END PART III
TIME: 14:22

APPENDIX E

SCRIPT: VIDEO TAPE SEGMENT FOUR
("Pan and Tilt Head")

PAN AND TILT HEAD - Tape IV

VIDEO		AUDIO
FADE IN ECU OF PAN AND TILT HEAD with SUPER OVER - SUPER: "PAN AND TILT HEAD"		
ESTABLISH AND... FADE TO BLACK		
		FADE IN JUNGLE SOUNDS AND MUSIC
FADE IN CU of cartoon-styled rustic SIGN reading "Wicked Witch's Castle" with arrow pointing left. ZOOM OUT AND ESTABLISH that sign is tacked to a tree - with other trees nearby.		
ANNOUNCER, wearing pith helmet, sunglasses, sneaks INTO SHOT, looks furtively around. Then, at taking camera...		
	ANNCR:	(British Accent) Hello! I say, you wouldn't be interested, would
Announcer takes a couple slides from his pocket.		you in some lovely shots which I took of my native boys being devoured by crocodiles as we crossed the Nairobi River??
He gestures "crocodile jaws."		Got some beautiful color shots as the crocodiles...
		(LION ROAR)
Announcer reacts, looks fearfully around; then breaks character, takes off helmet and hangs it on a tree branch.		(Minus accent) Sorry about that. They made me do it--owing to my strong
He moves away from the tree.		resemblance to Stewart Granger.

-MORE-

VIDEO	AUDIO
MS - ANNOUNCER SUPER: PAN AND TILT HEAD	ANNCR: When working as a television cameraman, you'll find there will be many times when you'll have to aim your camera in
PAN WITH ANNOUNCER as he takes a step one way, then the other.	various directions. (WALKING) Aiming the camera from side to side is called panning.
He stops. TILT UP AND DOWN slightly.	(PAUSE) Aiming the camera up and down is called tilting. (PAUSE) If the director should say..."Pan Left", this is what happens.
PAN as announcer walks LEFT to a sign reading "PAN LEFT." Cartoon-style sign is attached to a tree.	
Announcer walks RIGHT. PAN with him as he goes to--and stops at another tree with attached sign reading "PAN RIGHT."	(WALKING) If the director says ..."Pan Right", the camera is swiveled back to the right. If the director wants to center something on the screen that's, say, higher than my head, he'll say..."tilt Up."
TILT UP to sign hung in branches which reads: "TILT UP"	

-MORE-

VIDEO		AUDIO
	ANNCR:	Now, what will the director say if he wants a shot of my feet?...
TILT DOWN - SIGN at Anncr's feet reads: "TILT DOWN"		
TILT UP TO ANNCR.		(BRITISH ACCENT) Right! By jove, I think you've got it! (NO ACCENT) By combining the panning and tilting motions together, it's possible even to rotate the camera in a circular motion.
CAMERA ROTATES		(PAUSE; THEN FEIGNING DIZZINESS) ...Okay. Okay, you guys. I think you made your point!
CAMERA STOPS ROTATING		(PAUSE)
CU - PAN & TILT HEAD		The piece of equipment on a television camera which permits these up-and-down and side-to-side movements is called the
SUPER: PAN & TILT HEAD (CRADLE HEAD)		pan and tilt head. (POINTING) This particular type is called a cradle head. This
CS - PANNING HANDLE		handle extending from the rear of the pan and tilt head is
SUPER: PANNING HANDLE		called the panning handle.

-MORE-

VIDEO	AUDIO
	ANNCR: The cameraman uses the panning handle to control the camera's aim.
MS - ANOTHER ANGLE CS - CAMERA CAMERAMAN DEMONSTRATES	When you first approach the camera, it should be in the locked down position. Therefore, before you can operate it, you will have to uncap the lens. Then unlock and adjust the pan and tilt head so that the camera can be aimed smoothly and easily.
CU - PAN/TILT CONTROL KNOBS	There are two important adjustments the cameraman must make to unlock and adjust the pan and tilt head. You'll notice that on this side of the cradle head there are three knobs. (POINTING) These knobs control the amount of tension, or, as we'll be calling it..drag, which is being applied to the moving sections of the cradle head.

-MORE-

VIDEO	AUDIO
ECU - KNOBS	ANNCR: (POINTING) The large single knob located farthest away from the cameraman has been pre-set by the studio engineers and, for our purposes in this course, it should never be turned or adjusted by the cameraman. To do so could cause damage to the cradle head's drag mechanism. (POINTING) However, you <u>will</u> have to adjust these two concentric knobs located closest to the cameraman.
ANOTHER ANGLE - CU	This large knob nearest to the cradle head is called the
SUPER: TILT BRAKE KNOB	tilt brake knob, and it controls the amount of vertical drag, or, in other words, the ease with which the tilt-up/tilt-down movement can be made.
SUPER: PAN BRAKE KNOB (Protrudes)	(POINTING) This small protruding knob is called the pan brake knob and adjusts to set the amount of horizontal or panning drag.

-MORE-

VIDEO	AUDIO
Cameraman demonstrates clockwise-counterclockwise movements.	On both knobs, a clockwise turn will increase its drag, and a counterclockwise turn will decrease it.
Cameraman moves to rear of camera.	Stand in the cameraman's position behind the camera and grasp the
CU - PAN BRAKE KNOB	pan handle with your left hand. With your right hand, rotate the pan brake knob--the small protruding knob--about one-half
RESUME MS - Cameraman swivels camera.	turn counterclockwise. The cameraman should now be able to pan the camera from side to side.
CU - TILT KNOB	Now turn the large inner knob--the tilt brake knob--a half-turn in the same counterclockwise
RESUME MS - Cameraman tilts camera.	direction. This releases the the tilt lock. You should now be able to easily move the camera body up and down.
Demonstrating	Once both knobs have been loosened approximately a half-turn, pan the camera left and right with the panning handle

VIDEO		AUDIO
	ANNCR:	(PAUSE)--and adjust the pan brake knob until a slight drag is felt. Then, tilt up and down--(PAUSE)--and adjust the tilt brake knob until a slight drag is felt during this motion.
Demonstrating.		Next, rotate the panning handle in a circular motion. (PAUSE) If the pan and tilt head is properly set, the camera body should rotate smoothly and you should feel a slight drag throughout the motion.
CS - SUBJECTIVE SHOT of set. (JERKY CAMERA MOVEMENTS)		With too <u>much</u> drag, you won't be able to aim the camera body smoothly and the picture will appear jerky. (PAUSE)
CS - SUBJECTIVE - AS ABOVE (CAMERA FLOATS)		If there is too <u>little</u> drag, control of the camera movements is extremely difficult because the slightest pressure on the panning handle can cause the picture to sway...like this! (PAUSE)

VIDEO	AUDIO
MS - CAMERA/CAMERAMAN	Whenever a camera is left unattended, it must be capped and the pan and tilt head locked
SUPER: LOCKED-DOWN POSITION	into what is called the locked-down position. That is, the camera body is aimed so that it's parallel with the floor, and the pan and tilt brake knobs are turned clockwise, without forcing them, until the camera body no longer swings freely. Never force the knobs. This could strip the drag mechanism. (PAUSE)
MS - CAMERAMAN/CAMERA - Cameraman turns camera 180-degrees so that pan handle is nearest TAKING CAMERA.	The panning handle itself is adjustable to suit different-sized cameraman, making it easier to control the camera body when it is in different positions. When making an adjustment to the panning handle, be sure to have locked down the pan and tilt head.

-MORE-

VIDEO	AUDIO
CU - HANDLE AND LATCH Cameraman demonstrates.	The handle can be angled up or down by releasing this latch, (PAUSE)--setting the handle into the desired position, (PAUSE)--then relocking the latch.
MCU - PAN HANDLE Cameraman demonstrates.	The handle can also be adjusted for length. This is done by twisting the locking grip counterclockwise like this to release the extension section of the handle, moving the handle in or out to the length best for you, and then twisting the locking grip clockwise to relock the handle.
MS - ANNOUNCER in the "woods." BEGIN SLOW ZOOM IN...	That, then, is the pan and tilt head--the device which permits the cameraman to aim the camera body in a variety of directions in order to follow the subject's action, and to get many different shots from a single position in the studio.
TILT UP and ZOOM INTO ECU of pith helmet hung on the tree. Then... SUPER: PAN AND TILT HEAD	(LION'S ROAR)
FADE TO BLACK	

END PART IV
TIME: 7:50

APPENDIX F

SCRIPT: VIDEO TAPE SEGMENT FIVE
("Crank-type Pedestal Mount")

CRANK-TYPE PEDESTAL MOUNT - Tape V

VIDEO	AUDIO
FADE INTO	
SUPER: "CRANK-TYPE PEDESTAL MOUNT"	
CS - ANNOUNCER - standing next to the camera unit.	
ANNCR:	Let's now look at that part of a studio television camera which lets the cameraman moves the entire camera from one part of the studio to another.
WIDEN & TILT DN. TO PEDESTAL	(PAUSE) The unit upon which the camera body and the cradle head
SUPER: CAMERA MOUNT	rest is called the camera mount. This particular television camera mount is called a crank-type pedestal mount.
Announcer walks left and out of picture.	
Cameraman walks up to camera.	Let's see how the cameraman
CU - PEDESTAL	operates it and what it can do. The pedestal mount derives its name from this center column
Points to the crank.	or pedestal. The entire camera body can be raised or lowered with relatively little effort by turning this crank.

-MORE-

VIDEO	AUDIO
CU - CRANK - As cameraman demonstrates.	A clockwise turn raises the pedestal--(PAUSE)--and a counterclockwise turn lowers it. (PAUSE)
ZOOM BACK TO MS as...	As you can see, this allows the camera body to be positioned at a variety of heights.
He demonstrates parts, movements.	In order to be moved around the studio floor, the pedestal has a wheel located in each corner of this triangular base.
SUPER: STEERING HANDLE	This handle, called the steering handle, is used to control the direction of the wheels to steer the pedestal in any
FS - ANOTHER ANGLE	direction. If the cameraman wants to steer the pedestal to the left, he turns the handle to the left. To steer to the right, the handle is turned to the right. (PAUSE)

-MORE-

VIDEO	AUDIO
FS - Announcer "backstage" with a camera base tilted on its side.	When the steering handle is turned to aim the pedestal in a desired direction, all three wheels here in the base of the pedestal turn to point in that direction.
SUPER: STEER 3	This synchronized steering of all three wheels is called steer three.
	Steer three gives us mobility and flexibility in changing the camera's direction.
COVER - CAMERAMAN/CAMERA Cameraman demonstrates.	When the pedestal mount is set for "Steer Three," the pedestal will keep its same relative position no matter which way the wheels are turned.
FS - ANNCR/BASE	This relative position, however, can be changed by disengaging "Steer Three" and going instead
SUPER: STEER 1	to what is called Steer One.

VIDEO		AUDIO
Announcer demos.	ANNCR:	(POINTING) In "Steer One," only the rear wheel turns when we turn the steering handle. The other two wheels stay pointed in a single direction just like the rear wheels on a tricycle, and the whole pedestal base is steered very much <u>like</u> a tricycle.
COVER - CAMERAMAN/CAMERA He demonstrates.		With "Steer One," the position of the base can be changed to line it up in any desired direction.
MS - ANNOUNCER		That's all wonderful, you say. Right? But, how do you <u>go</u> from "Steer Three" to "Steer One?" (PAUSE)
CU - STEERING HANDLE - as cameraman demos.		To do this, line up the handle, as you see here, so that the forward end points directly at the center of the pedestal--
ECU - TRIGGER ON HANDLE He squeezes trigger.		(PAUSE)--then squeeze this trigger under the steering handle.

-MORE-

VIDEO		AUDIO
	ANNCR:	(PAUSE) If you later want to return to "Steer Three," you simply line the handle up again and release the trigger.
FS - CAMERAMAN/CAMERA		When moving any pedestal mount, there are a number of important things to be kept in mind: For example, always keep one hand on the panning handle so that the camera body is under control and not inadvertantly aimed at the studio lights or bumped into something. Also, before moving the camera, the cameraman must make sure he has enough cable to reach the new position, and he should arrange the cable in such a way
Demonstrate.		that one: it won't be in his way when he's actually making the camera movement, and two: it won't be seen in your picture or get in another camera's shot.

VIDEO	AUDIO
SUBJECTIVE SHOT - of a girl who moves according to AUDIO.	There are two basic camera movements that you should know
DOLLY IN	for now. The one you're seeing right now--where the camera
Then...	moves directly to the subject--
DOLLY BACK	or away from the subject--is a
SUPER: DOLLY (IN OR OUT)	move called a Dolly.
REPEAT DOLLY IN	When the director says "Dolly in," the camera is moved forward and the subject grows larger on the screen.
DOLLY OUT	When the direction is "Dolly Out" or "Dolly Back," the camera moves away from the subject, which gets smaller.
FS - DEMO CAMERA/CAMERAMAN	To perform a dolly, the cameraman, keeping his left hand on the panning handle to control the camera body, places
Sets handle direction.	his right hand on the steering handle and positions the handle for the direction in which he plans to go.

-MORE-

VIDEO	AUDIO
Pushes camera forward. ANNCR:	He then gives a push to set the pedestal in motion. Once
Hand on focus knob.	the camera is moving, the cameraman switches his right hand back to the focus knob in order to keep the subject in focus as the distance between it and the subject changes.
	Because the cameraman is dollying in, he'll have to turn the focus knob counterclockwise.
Cameraman demos dolly back.	To dolly-back, or dolly-out, the cameraman pulls on the steering handle with his right hand and, once the mount is moving, switches back to the focus knob--this time turning it clockwise to keep the subject in focus.

-MORE-

VIDEO	AUDIO
Dolly-back stops MS - TRUCKING with girl	ANNCR: The other basic camera maneuver you must know is called a
SUPER: TRUCK(ING) (Left or Right)	truck...or trucking...which, as you now see, is a sideward movement of the camera in relation to the subject.
TRUCK BACK WITH GIRL	
CS - STEERING HANDLE - as cameraman's hand ENTERS SHOT, turns handle	To truck right, the cameraman aims the handle in the direction he wants the camera to go.
PULL BACK TO MS as cameraman begins trucking	To initiate the move, the cameraman pulls on the handle with his right hand. As with the dolly movement, the cameraman must keep his left hand on the panning handle to control the camera's aim and to prevent bouncing and jerking while the camera is trucking.

VIDEO	AUDIO
Cameraman stops, then trucks left	To truck left, simply move the pedestal in that direction. (AS HE TRUCKS) If the camera remains the same distance away from the subject as when it started, the cameraman should not have to worry about setting focus during the trucking move. (PAUSE)
OTS - CAMERAMAN/CAMERA, MODEL	Again, the two basic camera moves you should know for now are the dolly and the truck. The
DOLLY TO CU	director's instruction to "Dolly
DOLLY TO CS	In" means a movement closer to the subject. "Dolly Out" or "Dolly Back" indicates a movement away from the subject. For trucking, the director's commands
TRUCK RIGHT	are either "Truck Right"...
TRUCK LEFT	...or "Truck Left."

VIDEO	AUDIO
? Backstage, Pedestal w upright.	This, then, is the crank-type pedestal mount and the basic moves that can be accomplished with it.
ıcer turns crank as...	
'O ECU of crank.	
OVER: CRANK-TYPE PEDESTAL MOUNT	
O BLACK	

END - Part V

TIME: 7:50

APPENDIX G

SCRIPT: VIDEO TAPE SEGMENT SIX
("Counterbalanced Pedestal Mount")

COUNTERBALANCE PEDESTAL - Tape VI

VIDEO	AUDIO
CS ANNOUNCER WITH PEDESTAL In FOREGROUND - Cameraman at pedestal with weights exposed.	This is another type of camera mount you'll be using both in your course work and in the television industry.
SUPER: COUNTERBALANCED PEDESTAL	It's called a counterbalanced pedestal mount.
ZOOM OUT to MS	(OPENING SIDE TO REVEAL WEIGHTS)
Cameraman adds a weight.	The pedestal on this type of mount is counterbalanced with lead weights so that the cameraman can raise or
Cameraman demos	lower the entire camera body smoothly and with relatively little effort...
RESUME AS ABOVE	thereby permitting a variety of camera heights.
FADE TO BLACK	
FADE IN ON CU of LOCKING PIN	When not being used, the pedestal mount is kept in a locked-down position by means of (POINTING)
SUPER: LOCKING PIN	this spring-loaded locking pin.

-MORE-

VIDEO		AUDIO
Cameraman demos	ANNCR:	Before the pedestal mount can be used, the cameraman must first unlock it. (DEMO) This is done by pulling the locking pin out about an inch, then rotating it a quarter turn in either direction and releasing it.
ECU - LOCKING RING SUPER: LOCKING RING		This small inner ring also acts as a locking device and must be tightened down when the camera is not in use. (DEMO) To loosen--or unlock--the ring, turn it counterclockwise. The
MS - CAMERAMAN/PEDESTAL Cameraman demos		pedestal column can now be raised. When the pedestal is at the desired height, a clockwise turn of the ring will tighten it and lock the pedestal at that height.
ZOOM OUT TO FS SUPER: PEDESTALLING UP/DOWN Cameraman demos		Raising and lowering the pedestal column is called pedestalling up and pedestalling down.

VIDEO	AUDIO
MCU - STEERING WHEEL - Cameraman demonstrates raising and lowering	When making these moves, the right hand should remain on this steering wheel in order to bring the pedestal to a smooth, controlled stop--thus preventing a jerky halt when the desired height has been reached.
MS - CAMERAMAN - Puts foot on corner	This mount also has wheels located in each corner of the base so that it can be moved around on the studio floor.
CU - STEERING WHEEL SUPER: STEERING WHEEL	(RISING) This large outer ring is called the steering wheel and is used to control the direction of the wheels.
ECU - ARROW WIDEN TO INCLUDE PEDESTAL ARROW	A triangle here shows the cameraman which way the wheels are turned. To go from "steer three" to "steer one" on this type of mount, the wheel-direction triangle on the steering wheel must be lined up with this triangle located on the side of the pedestal itself.

VIDEO		AUDIO
CS - PEDESTAL BASE	ANNCR:	The cameraman then uses these two buttons on the base of the pedestal mount. The button on the left is
SUPER: STEER 1/STEER 3		labeled Steer One, and the one on the right is marked Steer Three.
CU - BUTTONS		Because, in this case, the steer three button is depressed, all <u>three</u> wheels turn when the steering wheel is aimed.
Cameraman's foot depresses left button		When the cameraman steps on the steer one button, only one wheel is now
ZOOM BACK TO MS		under control. That wheel is located
Cameraman indicates corner		on the corner of the base immediately to the left of the steer one button. The base will now steer like a
Demonstrates returning to "Steer Three"		tricycle. To get back into "Steer Three," simply line up the
CU - TRIANGLE		triangles again and step down on the
CU - BUTTONS		steer three button.
BEGIN ZOOM IN TO CS OF STEERING WHEEL		The steering wheel operates much like the steering wheel on an automobile. The difference is that it is parallel to the floor and never has to be rotated more than half a turn.

-MORE-

VIDEO	AUDIO
CS - ANOTHER ANGLE - WHEEL	As with a car, you turn the steering wheel in the direction you want to go.
MS - (HIGH ANGLE) - OTS SUPER: DOLLY	For a dolly-in, aim the triangle on the steering wheel at the subject towards which you plan to move. Keep the left hand on the panning handle to control the camera's aim and, with the right hand, give a push on the steering wheel to set the pedestal in motion. Once the camera is moving, switch the right hand to the focus knob in order to keep the subject in focus as the distance between it and the camera changes.
	(STOPPING) To stop the pedestal, the cameraman eases up on his forward pressure so that the camera will halt at a desired distance from his subject.
	To dolly-back, or dolly-out, a pull on the steering wheel sets the pedestal in motion and the right hand is again free to return to the focus knob.

-MORE-

VIDEO	AUDIO
MCU - TRIANGLE/STEERING WHEEL SUPER: TRUCK	The other basic camera maneuver, you'll remember, is the truck. To perform this maneuver, move the directional triangle toward the direction you desire to go. In
OTS - FS Demo	this case, the cameraman will truck right. A pull on the steering wheel with the right hand sets the pedestal mount in motion. During all movements, the left hand on the panning handle controls the camera's aim and makes sure the picture does not bounce or jerk.
Cameraman stops truck right. Trucks left.	To truck left, from this position, simply reverse the direction by a push rather than a pull. The wheels are already lined up.
MS - ANOTHER ANGLE	(WHILE TRUCKING) If the camera remains the same distance away from the subject throughout the truck, the cameraman does not have to worry about setting focus as he performs this movement.

VIDEO		AUDIO
	ANNCR:	Again, the two camera moves you should know for now are the dolly
Demonstrate		...and the truck.
FADE TO BLACK		
FADE IN		
CS - Anncr. with studio in the background. Talent at desk, Floor Director talking to him. Model camera to camera left.		Hands-on experience in the studio will assist your understanding of the terms and operation of the studio equipment you have seen in this brief introduction of television at MSU.
Anncr. walks out of shot. Floor director walks back to model camera, gives stand-by hand signal - cues the talent.		
FADE TO BLACK		FADE IN MUSIC WHILE STILL IN BLACK
FADE IN COVER		
Lights have been dimmed. Anncr. taking off his mic. Director comes out of control room, shakes anncr's hand; they both get out cigarettes. Strike activities going on in background the entire time.		

VIDEO	AUDIO
FADE IN CREDITS - SOFTEN FOCUS ON TAKING CAMERA.	(MUSIC CONTINUED)

ROLL CREDITS:

Narrator

Dick Snoke

Written By

Lawrence W. Brown
Thomas U. Foster
Richard E. Snoke, Jr.
Paul Witkowski

Produced By

Thomas U. Foster

Directed By

Paul Witkowski

Produced for the

Television-Radio

Department

In Cooperation With

IMC/ITV

Michigan State University

HOLD ON LAST CREDIT

FADE TO BLACK	MUSIC OUT

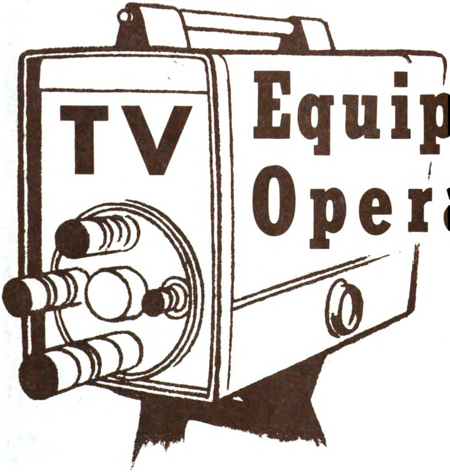
End - Part 6

Time - 7:00

APPENDIX H

GUIDEBOOK

GUIDEBOOK



Equipment Operation

Television and Radio Department
Michigan State University

A GUIDEBOOK TO BASIC TELEVISION EQUIPMENT OPERATION

Prepared for the
Television and Radio Department
Michigan State University

by

Thomas U. Foster

Illustrated by

Wilfred Veenendaal
Associate Professor
Instructional Media Center

East Lansing, Michigan
1972

FORWARD

Typically, students entering a basic television production course have many different levels of knowledge and competence in television equipment operation. Further, once the production phase of such a course begins, any initial knowledge gap between students almost always widens. Since television production is a highly interdependent effort, weaknesses or difficulties experienced by any one member of the student crew reduces the quality of the learning experience of all other crew members.

In order to minimize this learning gap, as well as to ensure that all students have the basic minimum knowledge about the operation of equipment and the responsibilities of all crew members before the production phase begins, an instructional introductory unit has been developed. It consists of this guidebook, a series of televised lessons ("Introduction to Television at MSU"), and several immediate feed-back diagnostic tests. In addition, the pre-test enabled both you and the Television/Radio Department to determine your prior television knowledge; it also told you the kind of information to be covered in this introductory unit. A post-test will also be given at the conclusion of the unit in order to evaluate your knowledge at that time.

This guidebook was not designed to replace a textbook or to be used by itself. Instead, it is an intregal part of the introductory instructional unit and as such contains information that will:

1. Reinforce and clarify the material contained in the televised lessons;

2. Supplement the material provided in the televised lessons. This includes information you will need in your production exercises but which was not included in the televised lessons.

After you have viewed one of the televised lessons, study carefully the corresponding section in the guidebook, as well as the glossary. This approach should provide you with sufficient basic information about television equipment and personnel responsibilities that your production experiences will be greatly enhanced. Once you have actually begun the production aspect of the course, this guidebook can then be used as a reference source.

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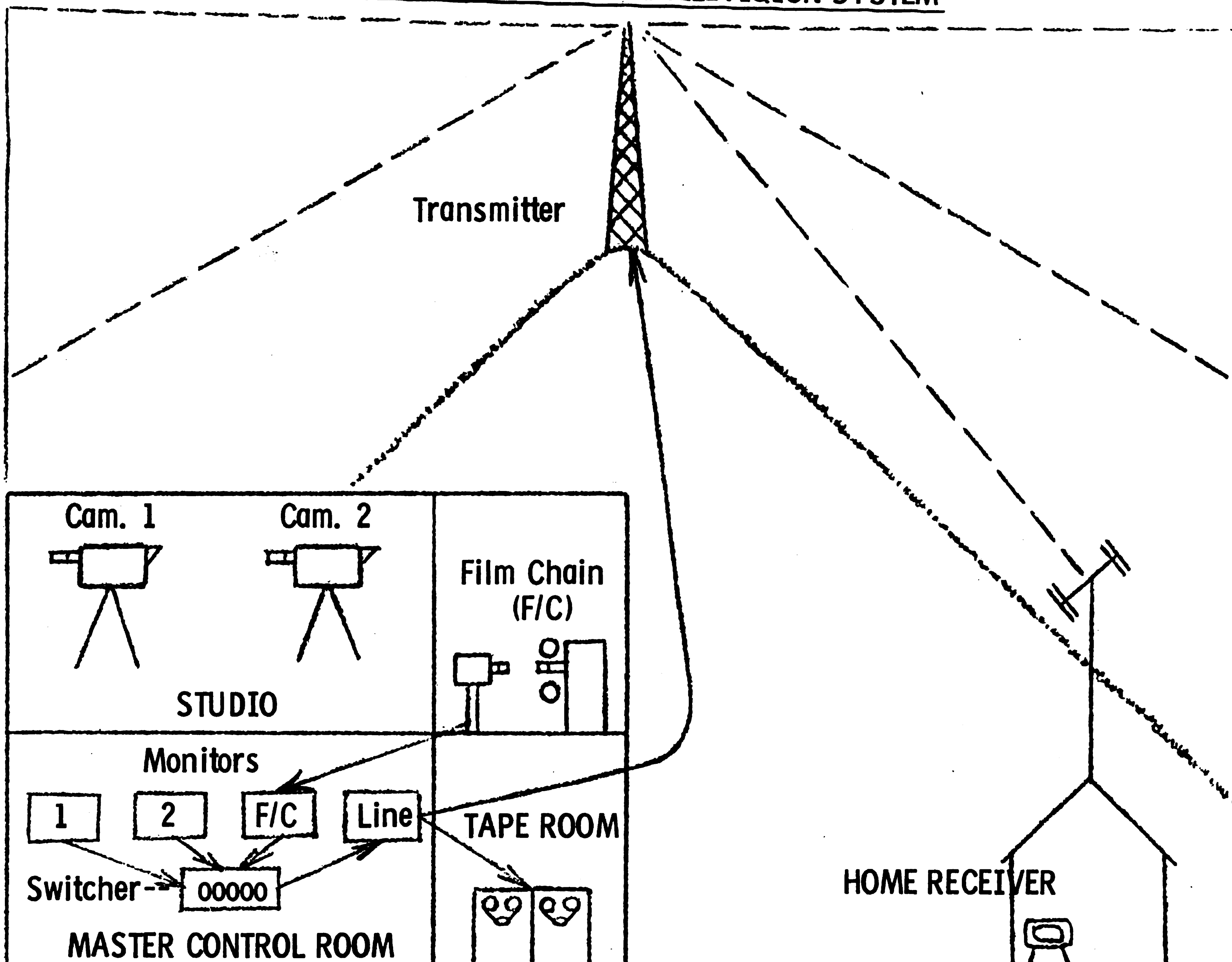
DIAGRAM OF OVERALL TELEVISION SYSTEM



RESPONSIBILITIES OF A TV PRODUCTION CREW

Control Room

DIRECTOR

1. Coordinate and control all production elements during taping or live broadcasting.
2. Select appropriate picture (video) and sound (audio) to go out over the air at the right time.
3. Communicate with all other crew members during production via:
   a. Headset or intercom.
   b. Hand signals.
   c. Direct voice contact (control room only).
4. Utilize basic tools or aids (aside from production equipment):
   a. Script.
   b. Special clock or stop watch.
   c. Monitors (for each video source as well as the line monitor).

SWITCHER (Technical Director or "T. D.")

1. Operate the electronic switcher on command from the director.
2. Be alert to both the director's instructions and the actions of other crew members.
3. Know what is on all monitors--particularly what is on the line (i. e., that which is being transmitted or taped).

PROJECTIONIST

1. Load correct film and slides into the projector properly and ready them for use.
2. Operate the projection equipment on command from the director or when called for in the script.
3. Rewind film and unload slides after production is finished.

AUDIOMAN

1. Set up and test all microphones to be used in a production.
2. Ask for audio check before the production begins.
3. Select the right sound, at the proper level, to accompany the picture being fed to the line.
4. Ride gain on all audio sources during a production.
5. Operate turntables and tape decks used during a production.
6. Strike all audio equipment used during the production.

RESPONSIBILITIES OF A TV PRODUCTION CREW

Studio

FLOOR DIRECTOR

1. Act as the link between the director and the studio talent.
   a. Establish a friendly, comfortable atmosphere for the talent before and during the production.
   b. Communicate to the talent exactly what is expected of him and how he can carry out these expectations.
   c. Keep talent informed of what is going on in the studio and control room, including the reasons for delays, etc.
2. Communicate the director's instructions during production to the talent by means of hand signals or cues.
3. Coordinate the studio crew members during production so that the studio operates smoothly and efficiently.
   a. Be alert and anticipate potential difficulties or problems.
   b. Take necessary steps to alleviate potential problems.
4. Take charge of both set up and strike activities in the studio.
   a. Make certain all production elements are present and correctly placed for use by talent and/or crew members.
   b. Make certain all production elements are put away after production and that the studio is left clean and orderly.

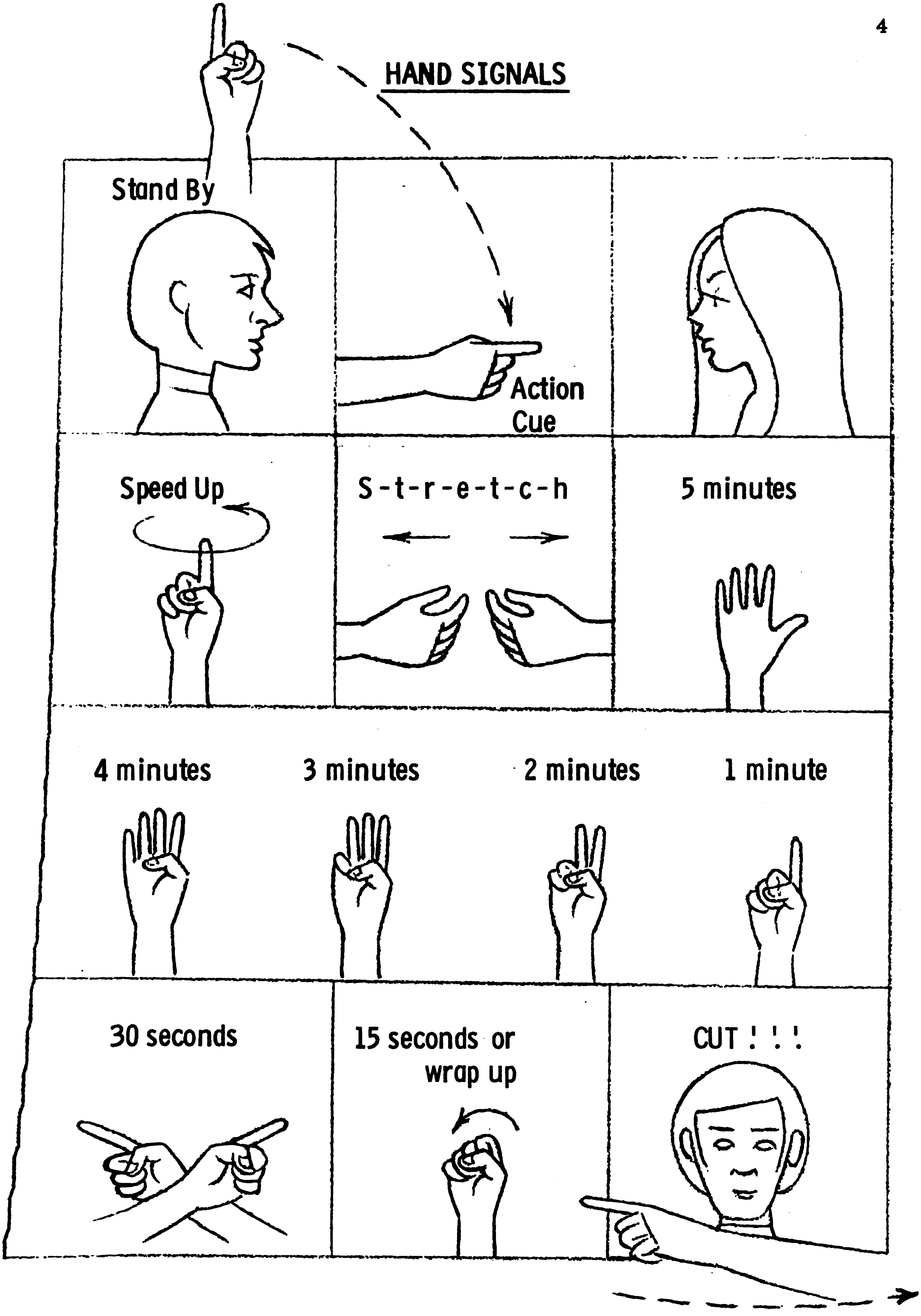
LIGHTING DIRECTOR (may also be one of the other crew members)

1. Plan out the amount and type of light needed for production.
   a. Select the specific lighting instruments needed for the production.
   b. Arrange them properly on the grid.
   c. Operate the lighting board during production if required.
2. Strike all lighting instruments following production.

CAMERAMAN

1. Obtain well composed picture or shot according to the director's instructions and have it ready when needed.
2. Operate camera with care so as to avoid unnecessary damage.
   a. Avoid aiming camera at lights which can damage or "burn" the sensitive electronic components.
   b. Be aware of the presence of set pieces and camera cable, etc.

HAND SIGNALS



SOME REMINDERS FOR CAMERAMEN

1. Always wear a headset when operating a TV camera so that you are continuously in direct communication with the video engineer.

2. Before uncapping a locked-down camera, get clearance from the video engineer.

3. The only camera body controls to be adjusted by the student cameraman are the viewfinder brightness and contrast controls, the focus knobs, the intercom level, and the lens turret controls. (All others will be pre-set and/or adjusted by the video engineer.)

4. Once you have unlocked the pan and tilt head, keep one hand on the panning handle so that the camera body is under control at all times. If you must leave the camera, re-lock the pan and tilt head.

5. In order to avoid electronic damage (known as "burn-in") to the sensitive (and expensive) pick-up tube:

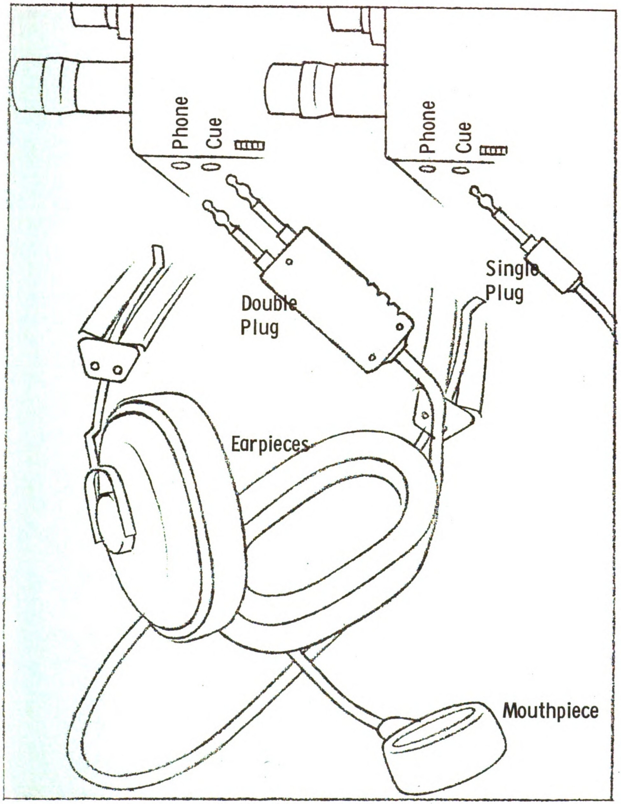
   a. Do not aim a camera directly at a light source.
   b. Do not allow a focused camera to be left locked down on a scene for a long period of time (2 minutes or more). Be especially careful when the camera is focused on high contrast materials, such as "supers." Provided that your camera is not on the air, either defocus the lens until needed or rotate the camera body in a circular pattern with the panning handle.

6. In order to change lenses:

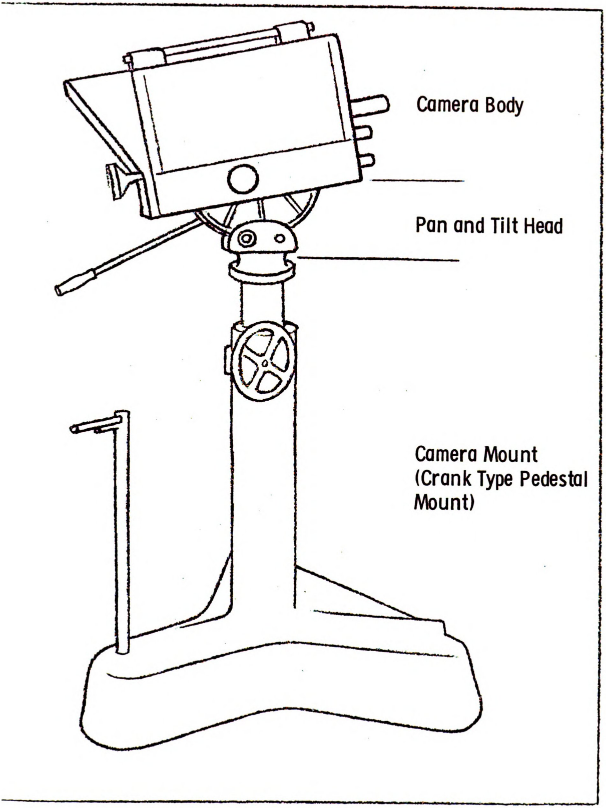
   a. Squeeze the release bar on the racking handle so that the lens turret rotates freely.
   b. Turn the racking handle until the desired lens size, as indicated numerically on the back-plate, lines up with the indicator mark above the back-plate.
   c. Release the handle gently--do not allow the lens to "snap" into place.

HEADSET (INTERCOM) AND CONNECTORS

(Sarkes Tarzian Camera)



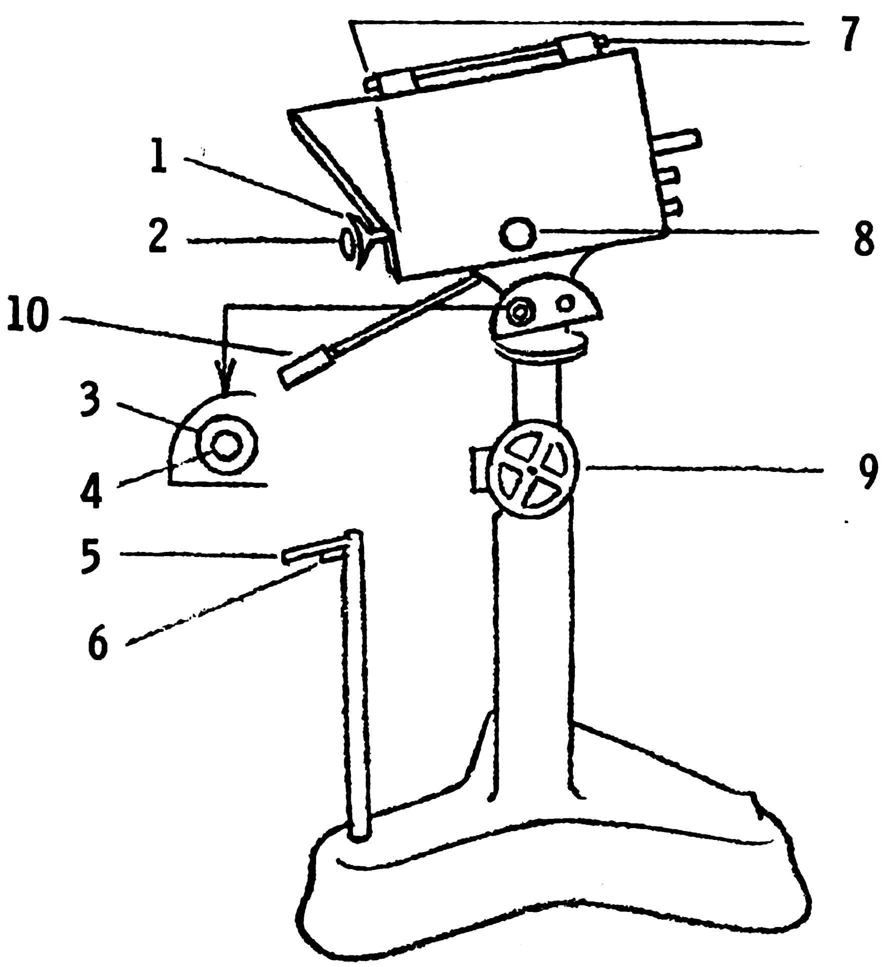
THE SARKES TARZIAN CAMERA: 3 MAIN PARTS



BASIC CAMERA PARTS

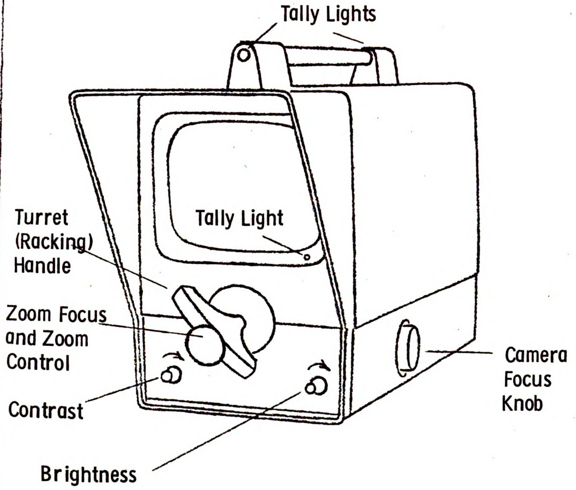
(Sarkes Tarzian Vidicon Camera mounted on a crank-type pedestal and a cradle mount)

1. Turret handle (or racking handle)
2. Zoom focus and zoom control
3. Tilt Brake Knob
4. Pan Brake Knob
5. Pedestal Steering Handle
6. Trigger to engage Steer 1
7. Tally Lights
8. Camera Focus Knob
9. Pedestal Elevation Crank
10. Panning Handle



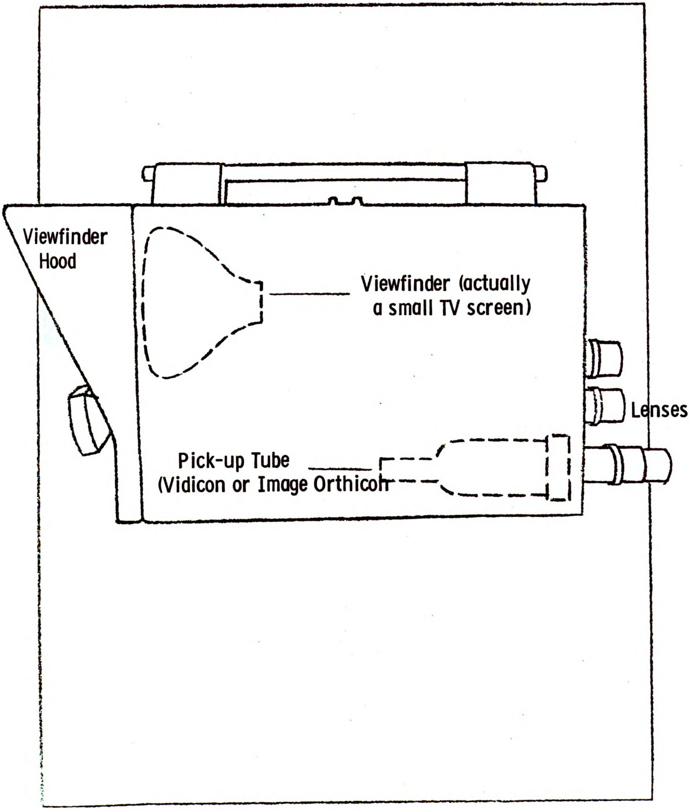
SARKES TARZIAN CAMERA BODY

(Rear View)



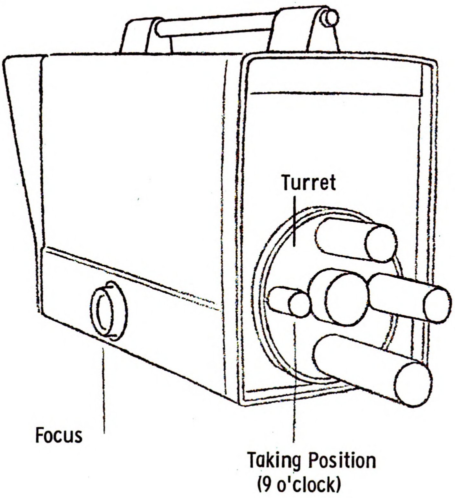
SARKES TARZIAN CAMERA BODY

(Side View with Interior Components)



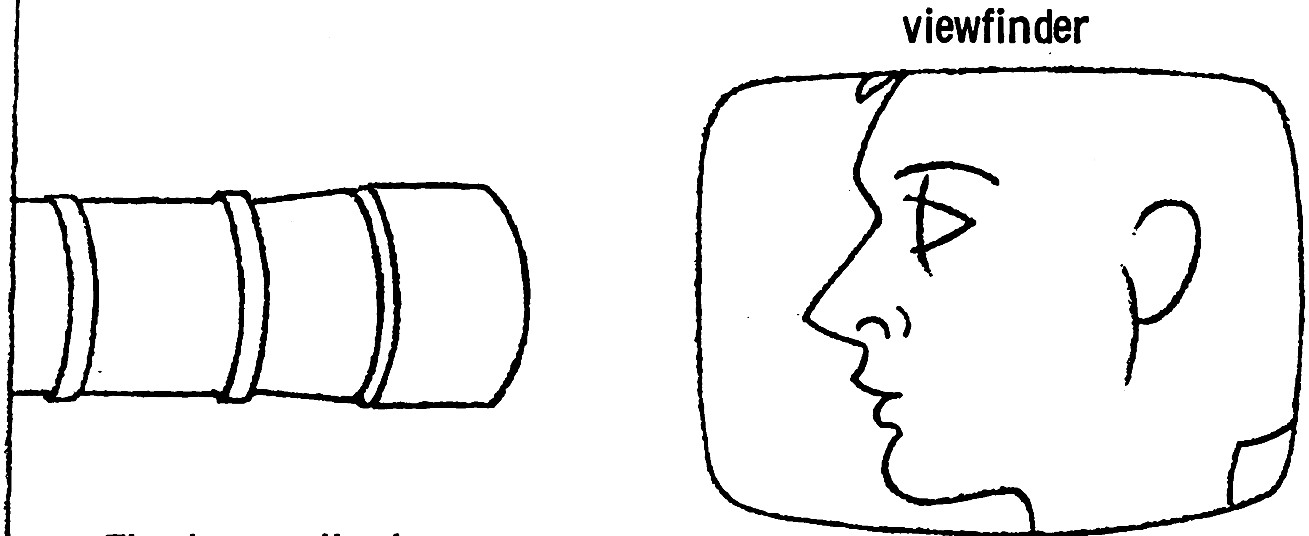
SARKES TARZIAN CAMERA BODY

(Front View)

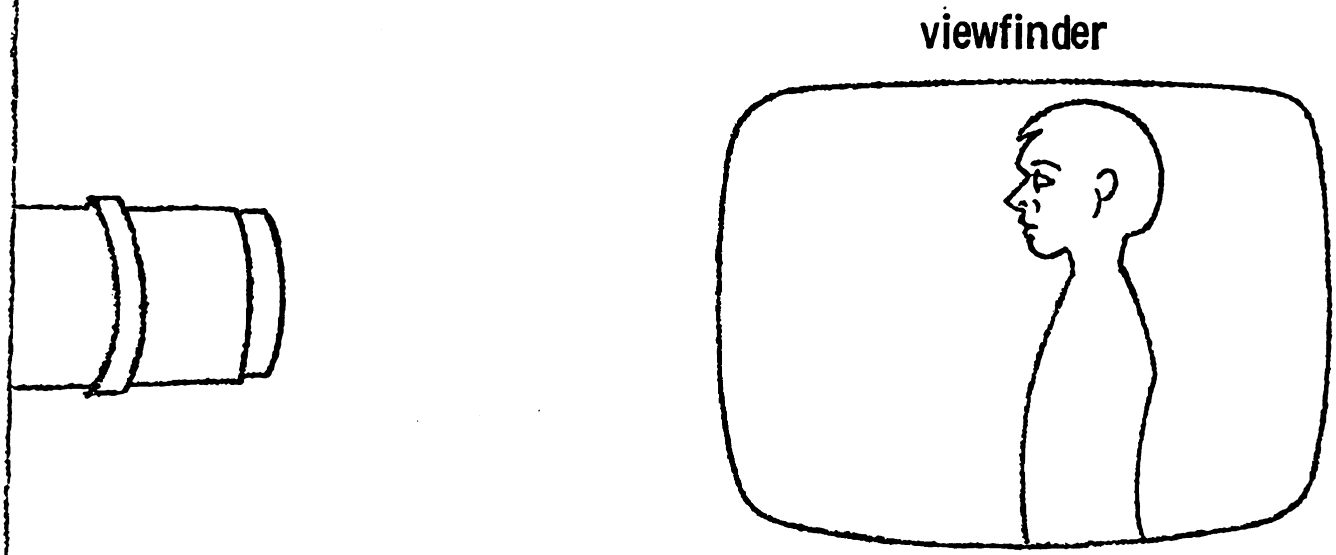


THE LONG AND THE SHORT OF LENSES

(The Effect of Long and Short Lenses on a Subject)



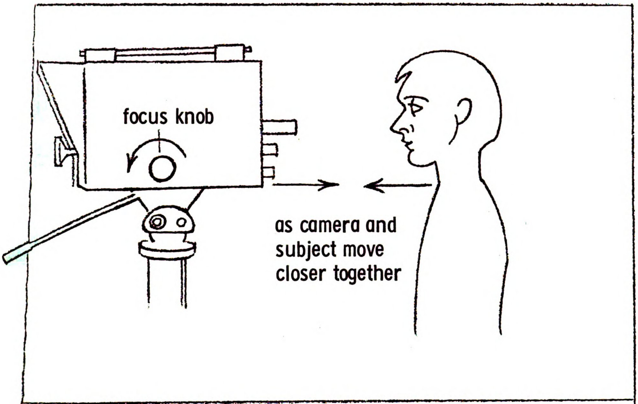
The longer the lens,
the more magnification.......... i. e., the subject appears closer.

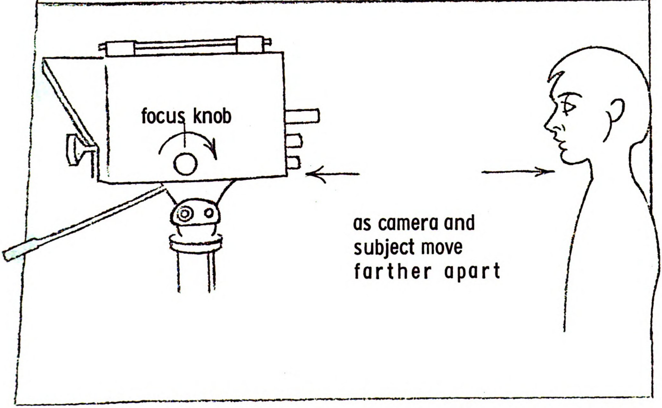


The shorter the lens,
the less magnification........... i. e., the subject appears farther away.

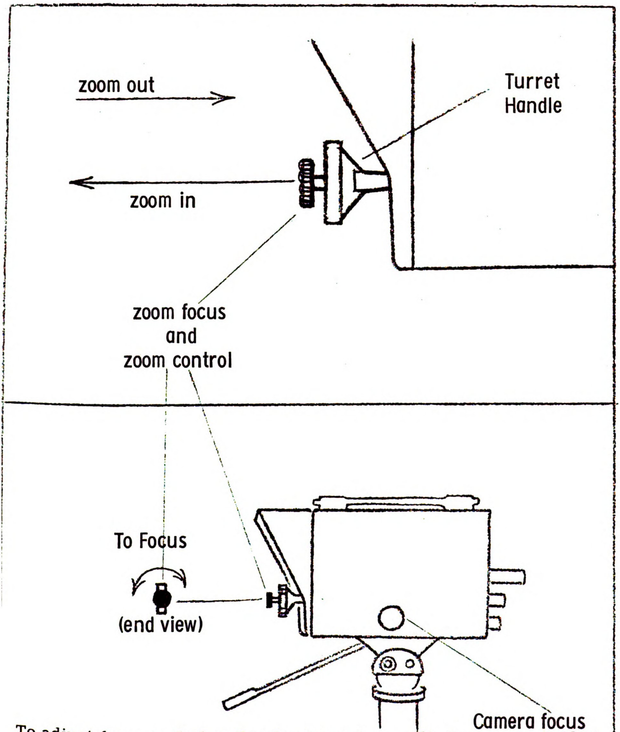
CAMERA FOCUS

(Standard Lenses)

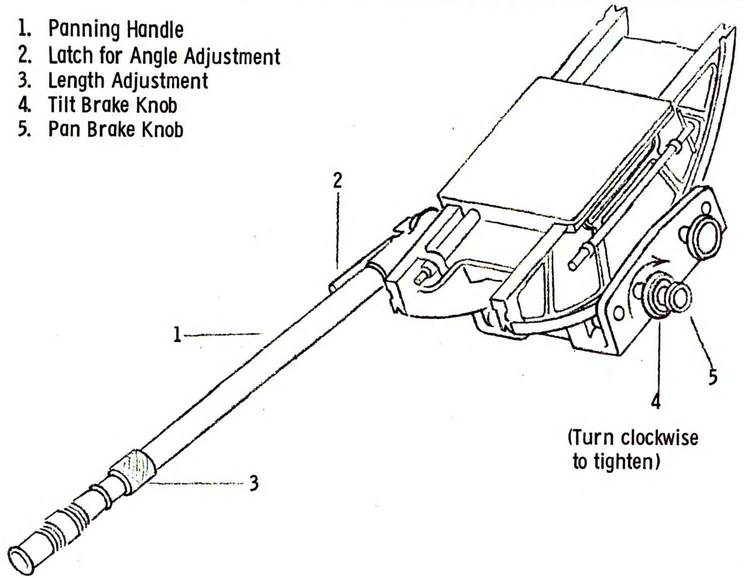




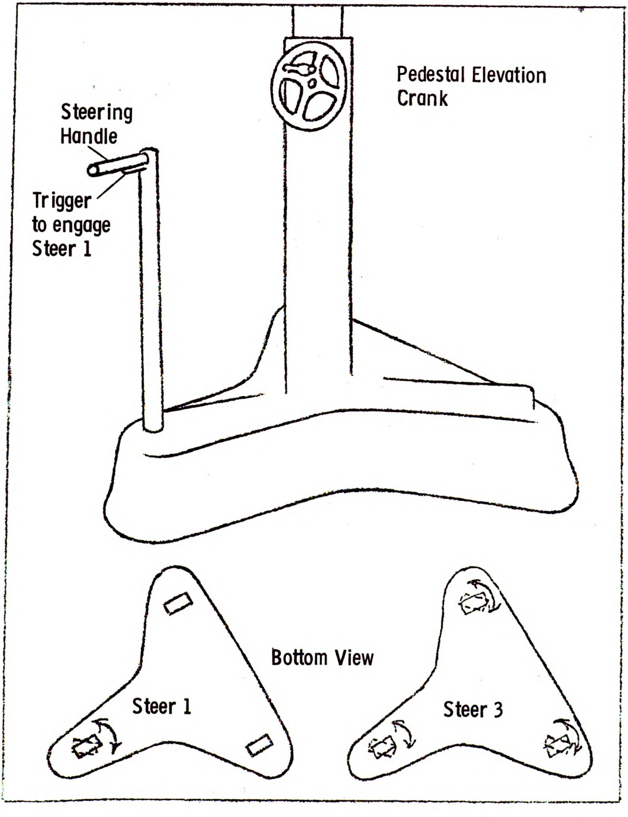
SARKES TARZIAN ZOOM FOCUS AND ZOOM CONTROL



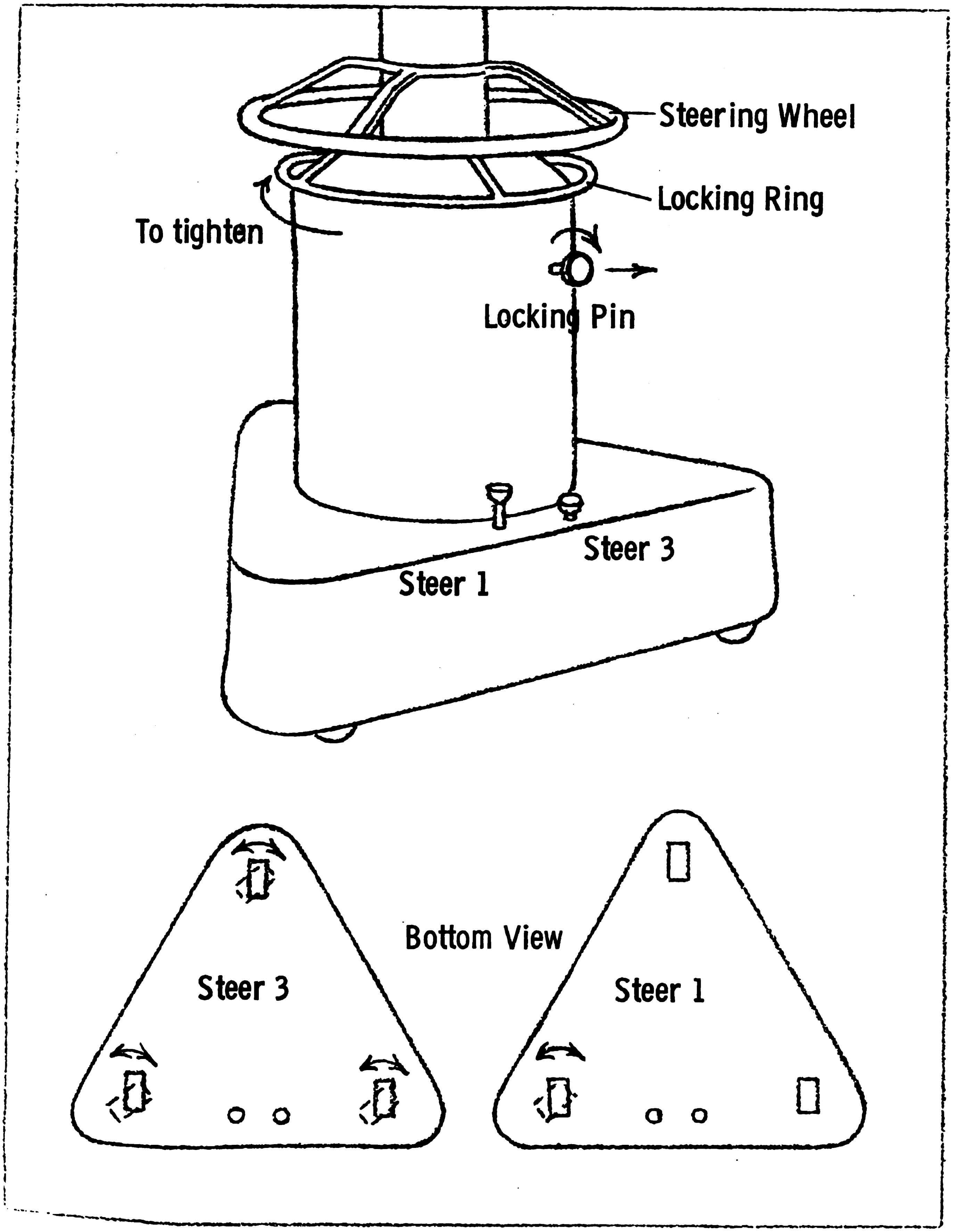
To adjust focus on Sarkes Tarzian Zoom Lens: (1) Zoom out to widest shot by pushing zoom plunger in as far as possible; adjust camera focus. (2) Zoom in to tightest shot by pulling zoom plunger all the way out; adjust zoom focus.


1. Panning Handle
2. Latch for Angle Adjustment
3. Length Adjustment
4. Tilt Brake Knob
5. Pan Brake Knob
2
1
3
4
5
(Turn clockwise to tighten)

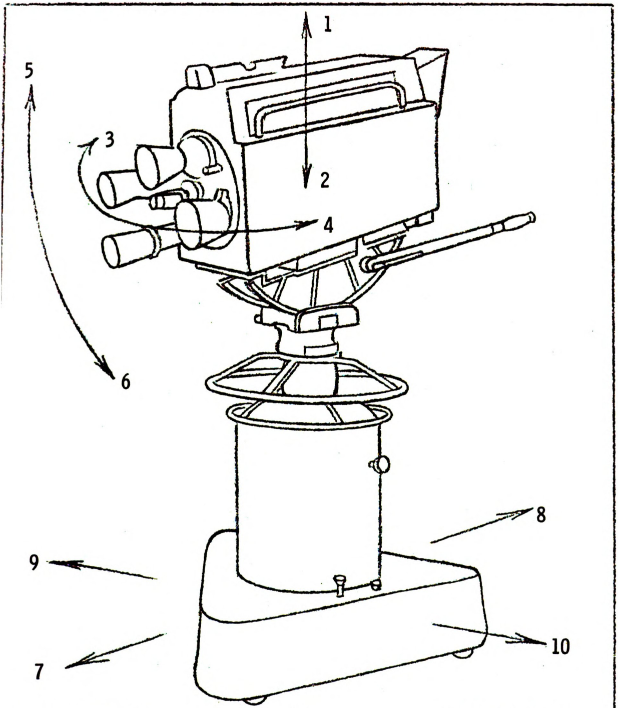
CRANK-TYPE PEDESTAL MOUNT



COUNTER BALANCED PEDESTAL MOUNT

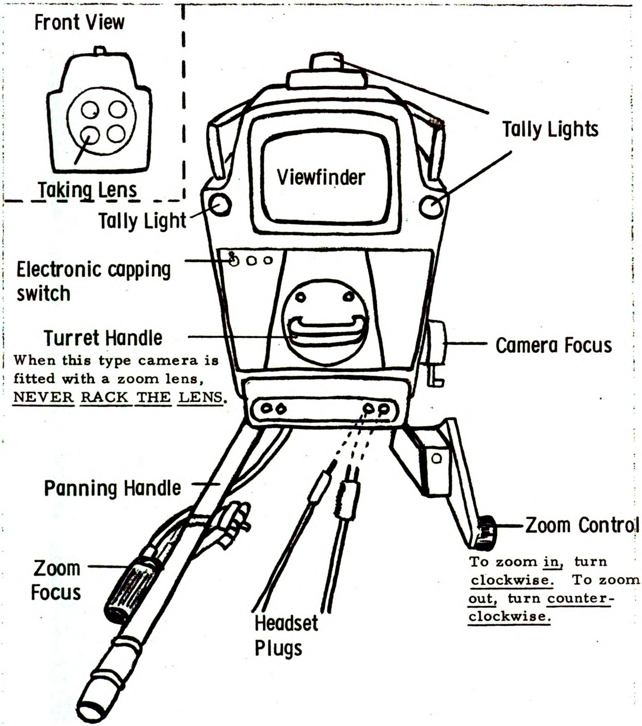


BASIC CAMERA MOVEMENTS



1. Pedestal Up
2. Pedestal Down
3. Pan Right
4. Pan Left
5. Tilt Up
6. Tilt Down
7. Dolly In
8. Dolly Out (or Back)
9. Truck Right
10. Truck Left

RCA TK-60 CAMERA



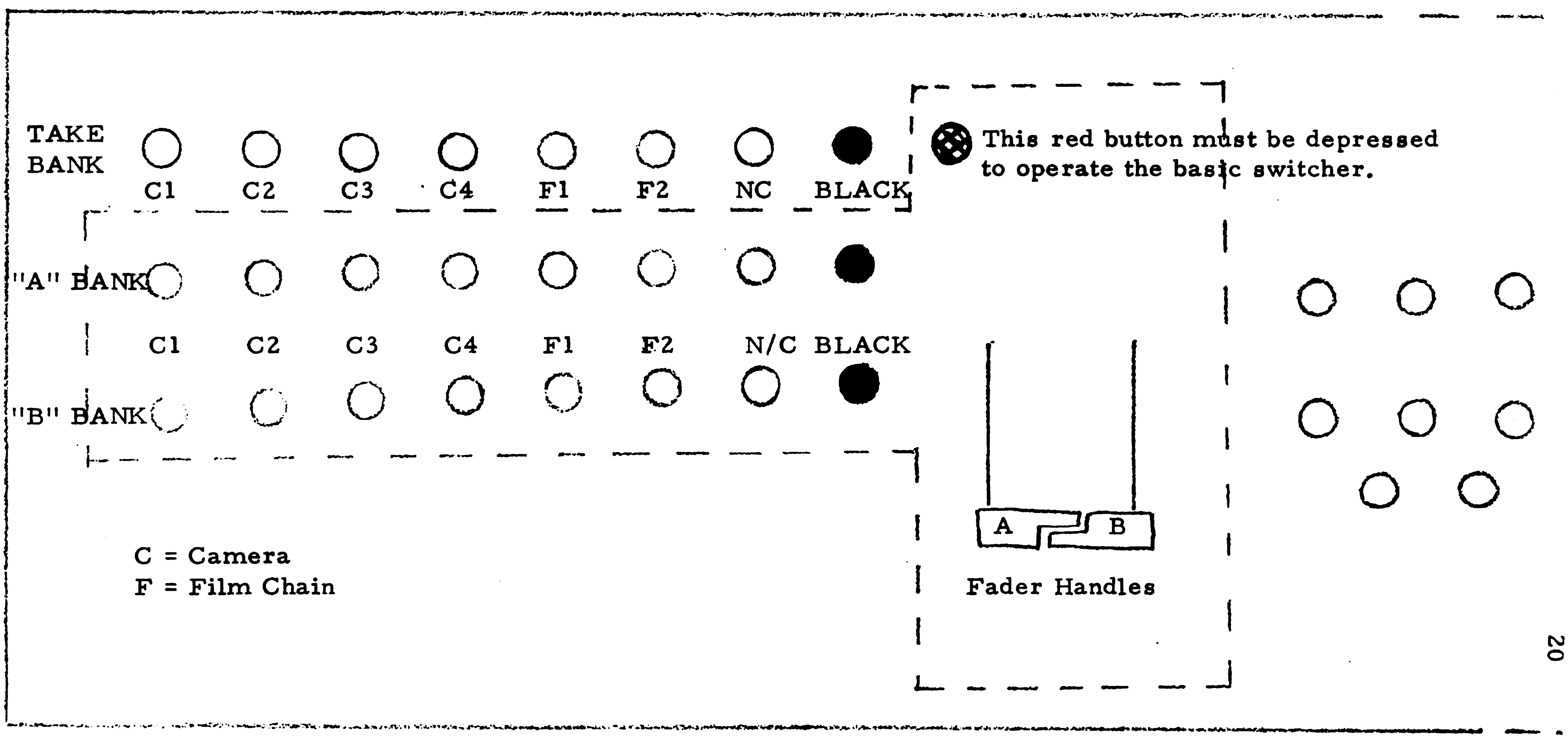
TO FOCUS ZOOM LENS:

(1) Zoom all the way out and adjust the camera focus.

(2) Zoom all the way in and adjust the zoom focus.

SWITCHING PANEL AT INSTRUCTIONAL TELEVISION SERVICE

Basic switching systems (enclosed within the dotted lines below) use two parallel rows of buttons. Each button represents one video source (a camera or film or slide), except one for one "dead" or "black" button. Buttons pushed in the row lined up with the fader handles are fed to the program line. Moving the fade handles from "A" bank fades out the "A" bank while fading in the "B" bank. The mid-position (between the "A" and "B" banks) produces a super-imposition (super) of the input on "A" and the input on "B". In actuality, "A" handle fades "A" bank only, and "B" handle fades "B" bank only. However, most basic switching operations can be performed with the two handles locked together with the latching device. The single row of buttons (above the "basic switching system" is called the "Take Bank" and can be used only for takes. When using this bank, the fader bars have no effect on output.

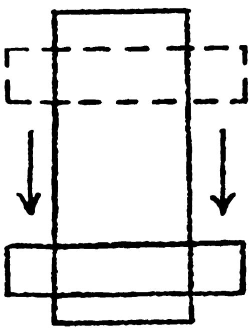


EXAMPLES OF SWITCHING OPERATION

Some of the buttons actually found on the switcher (e. g., "F2") have been eliminated in the following examples to simplify them.

 = Button already depressed as example starts

 = Button depressed on command (e. g., "Take One") or the button is pushed down on the bank that the fader handles are to be moved to.



= original position of fader handles

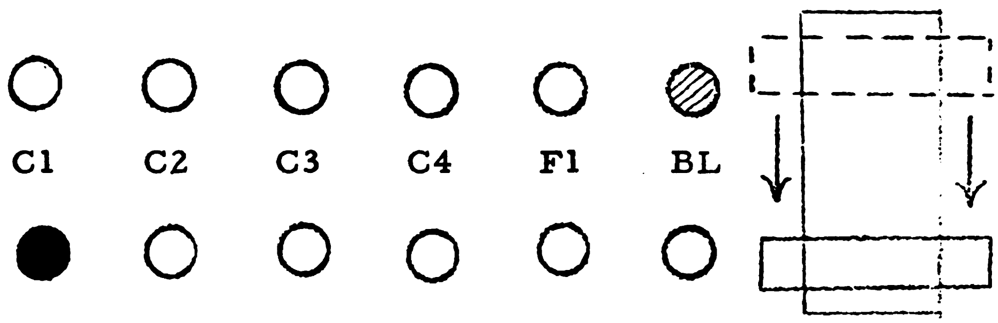
= direction fader handles are moved

= final position of fader handles if they are moved to execute a command

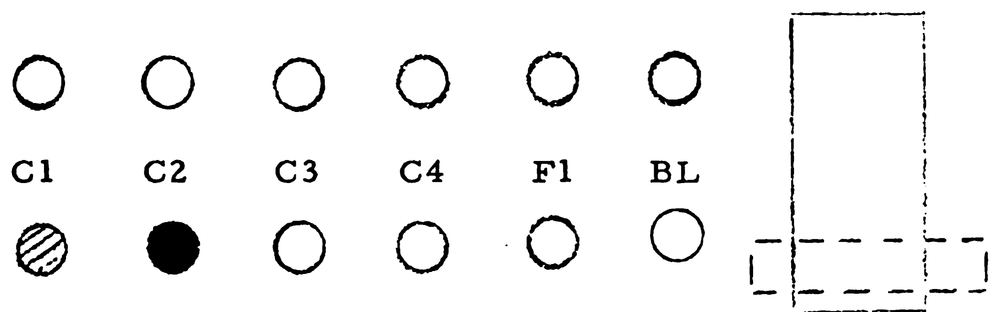
C = Camera F = Film Chain BL = Black

COMMAND

Fade in from Black to Camera 1



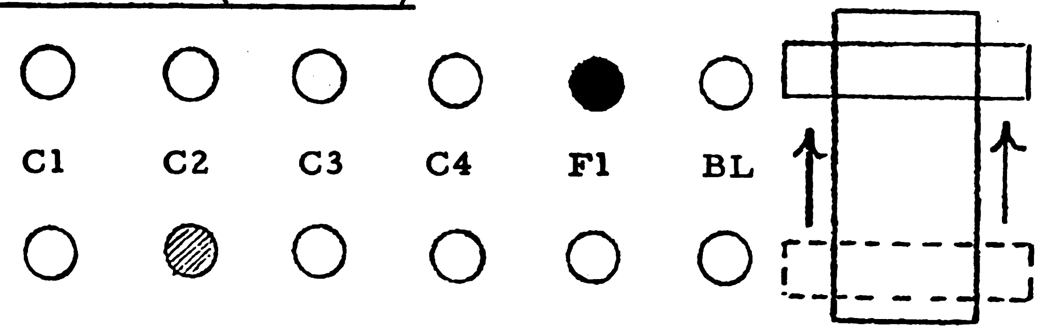
Take 2



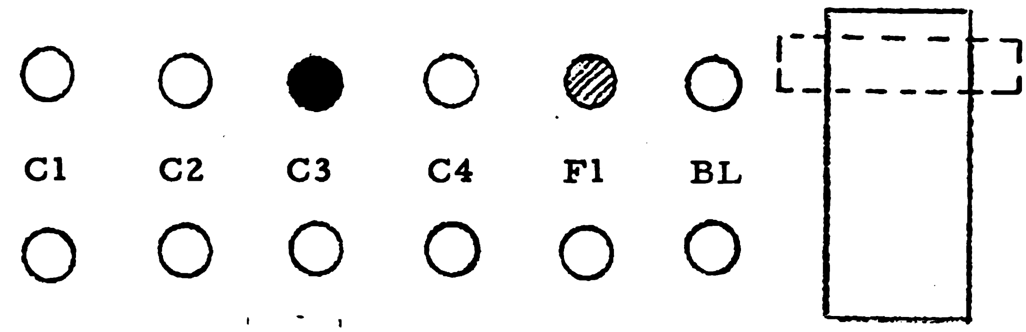
"EXAMPLES" (continued)

COMMAND

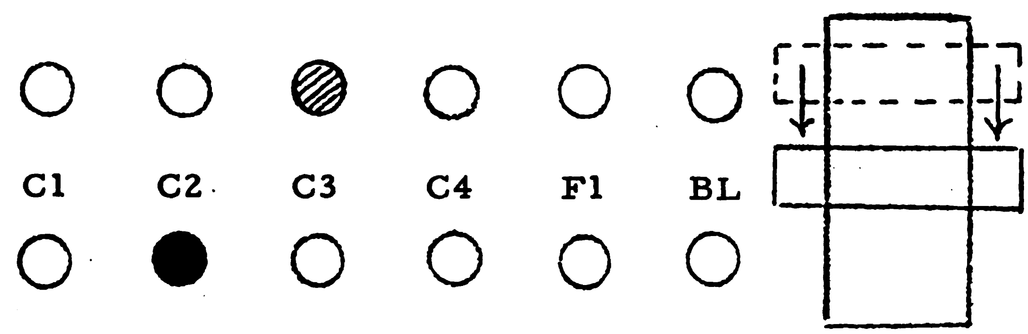
Dissolve to
Film Chain 1



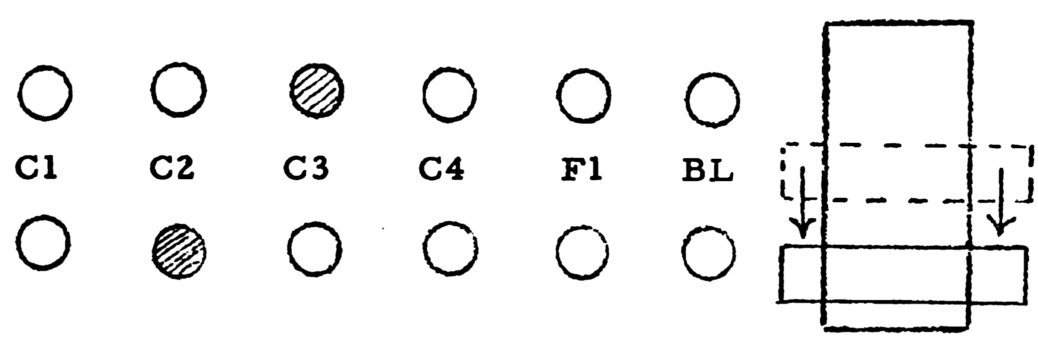
Take 3



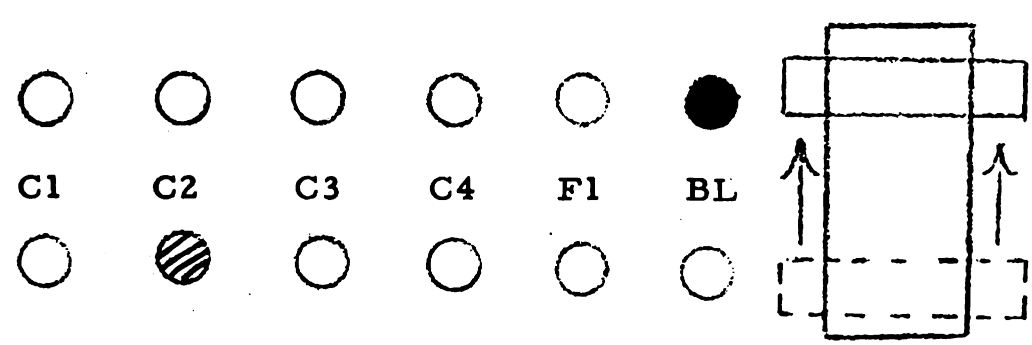
Super 2 and 3



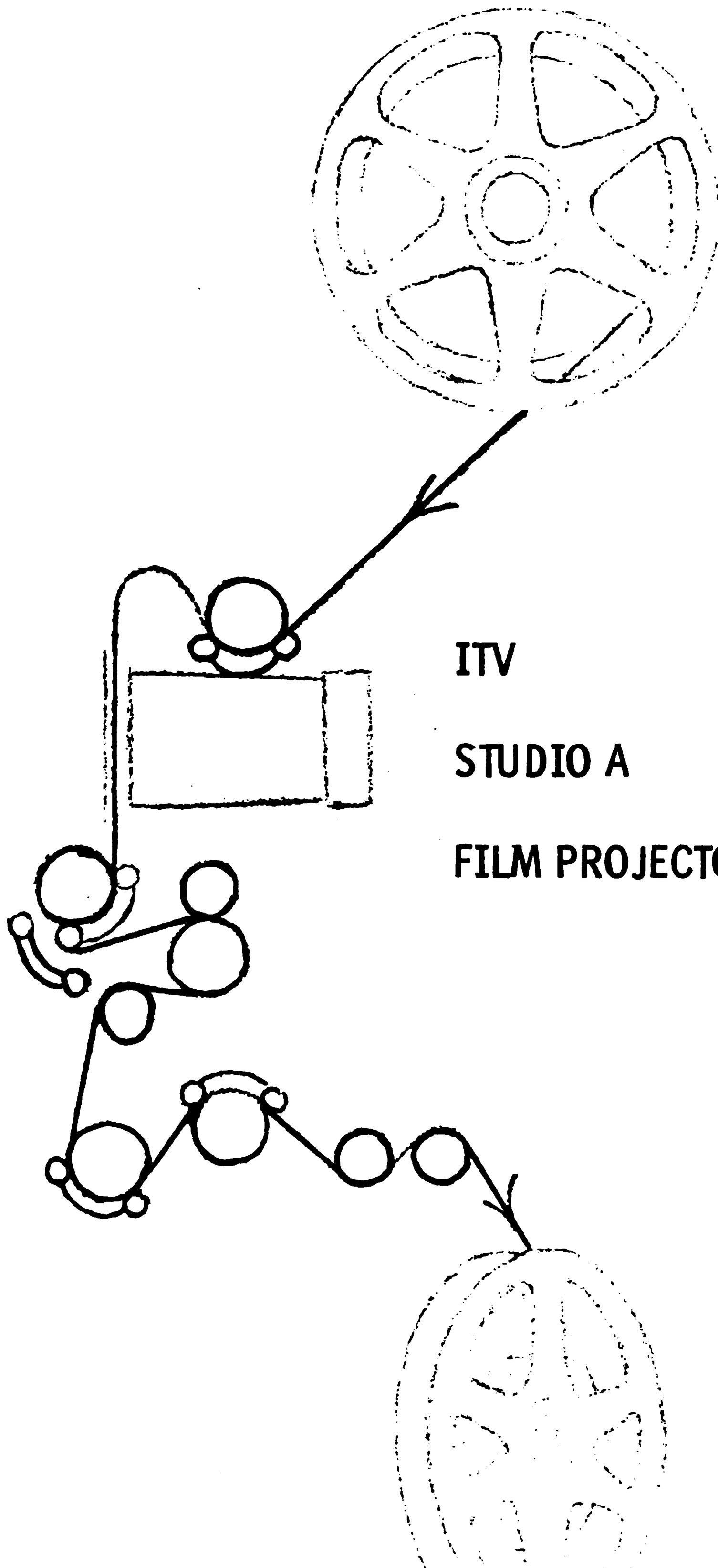
Dissolve on through
to 2



Fade to Black



PROJECTION

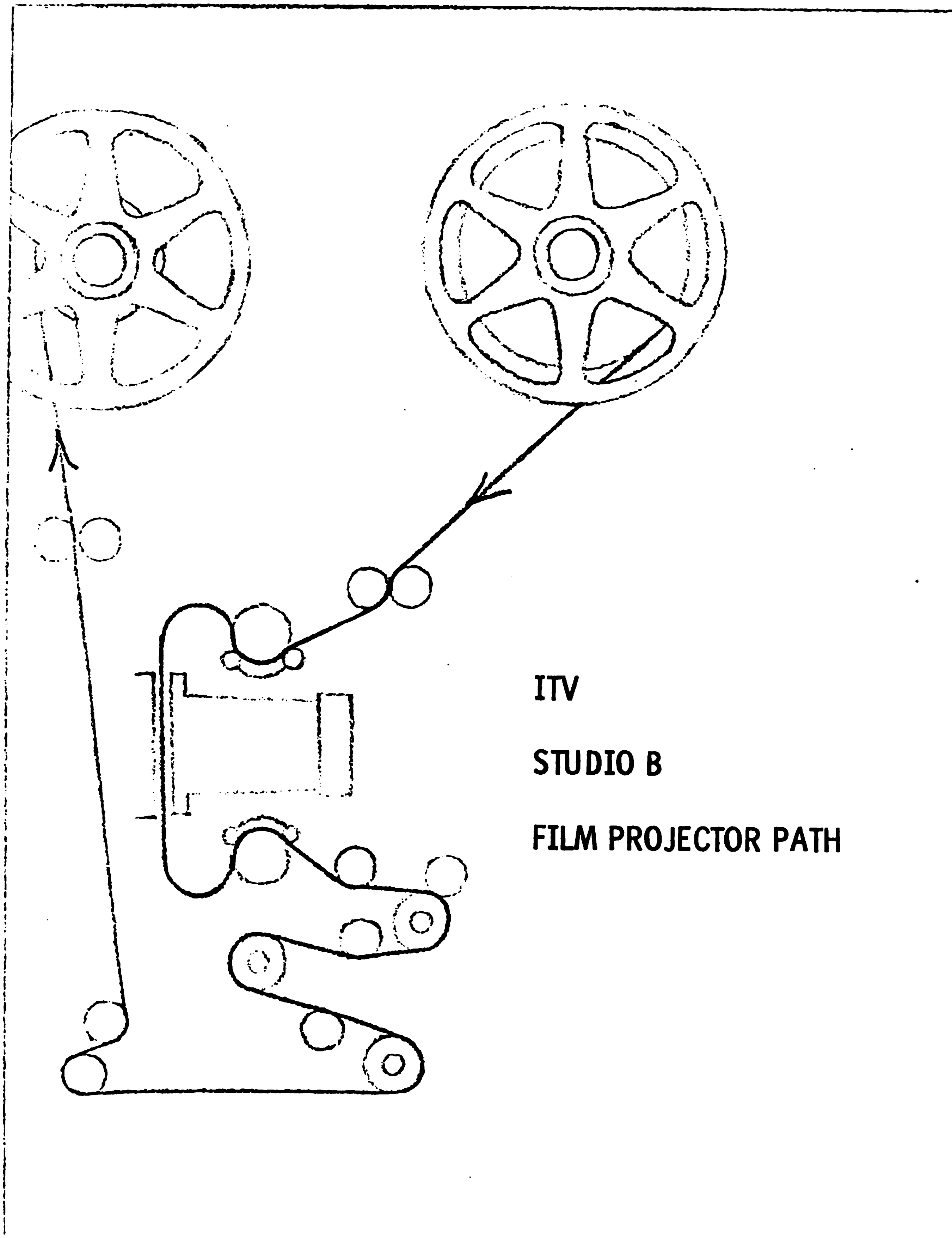


ITV

STUDIO A

FILM PROJECTOR PATH

PROJECTION



TELEVISION SCRIPT FORMAT

VIDEO		AUDIO
CARD: "SCRIPT"	ANNCR:	"Script," a thrilling look at the words behind the scenes, begins with a card--described under "video"--and these words of mine--under "audio."
MS NARRATOR AT DESK	NARR:	When I take over, capital letters introduce me. If you want to tell me something, use caps for that too. (PAUSE) But, let's see a slide. (SNAPS FINGERS)
SLIDE: "SLIDE IS..."		A slide is from the film chain, so you have to give the director a video cue--over on the left--that tells him where the next picture is from and what it is. When no other instructions are given, as in this case, it is assumed that studio cameras are being used.
CU NARRATOR		Back again! So far, all video cues are considered cuts because there's no other instruction. If you want the switcher to do something different, specify it on the left.

-MORE-

VIDEO		AUDIO
SUPER SLIDE: "NEMO"	NARR:	That's the way to get a super. And have you noticed all along that the video is lined up with the audio that accompanies it? Now, here's your announcer.
	ANNCR:	Your narrator has been Mr. Nemo.
SUPER OUT		Let's take the super out...
DISSOLVE CARD: "SCRIPT"		dissolve to the title card and end the above.
FADE TO BLACK		

-END-

GLOSSARY

Anncr. (or Ann.): Abbreviation for Announcer.

Aspect ratio: Height and width of a television picture: three units high and four units wide.

Audio: Electronic reproduction of audible sound. Audio refers to the sound accompanying the "video" or visual portion of a television program.

Bank (or Bus): Rows of buttons on a video switching panel.

Black: Darkest part of the gray scale; "to black" means to fade the television picture to black (i. e., to no picture).

Burn-in: Image retention of the camera pickup tube; if a camera is focused too long on an object with strong contrast, the picture tube retains a negative image of this object although other object is being photographed.

Bus (or Bank): See Bank.

Camera: (1) TV camera body; (2) the entire camera unit (camera body, pan and tilt head, and camera mount) is also referred to as the camera.

Cap: Lens cap; cap placed over the taking lens when the camera is not in use to keep light away from the pickup tube; also an electronic device that eliminates the picture from the camera pickup tube.

CCTV: Closed-circuit television.

Close-up: Camera shot in which object or any part of an object is seen at close range and framed tightly.

Contrast: Contrast between black and white in a TV picture.

Control Room: Room, adjacent to the television studio, from which the program is coordinated.

Cover shot: Wide-angle shot giving basic orientation of place and action; covers a great area.

Cradle head: Cradle-shaped pan and tilt head.

CU: Close-up.

Cue: (1) Signal to start action; (2) White or black dots on film, indicating the end of the film.

Dimmer:	Located on the lighting control board; controls the brightness of the studio lights.
Director:	Coordinator of all production elements during the on-the-air telecast or taping.
Dissolve:	Gradual transition from one picture to another whereby the two pictures overlap briefly.
Dolly:	Moving the camera toward (dolly in) or away (dolly out or back) from the object.
ECU:	Extreme close-up; same as XCU.
Essential area:	Picture area that shows on a home receiver.
Establishing shot:	Orientation shot, usually a long shot.
Fade:	(1) Video: picture either goes gradually to black (fade to black) or appears gradually on the screen from black (fade in). (2) Audio: decrease in volume.
Feed:	Signal transmission from one program source to another, such as a network feed or a remote feed.
Film and Slide Chain:	(Usually shortened to Film Chain.) Entire unit through which motion picture film and slides are shown. Usually consists of motion picture projector, slide projector, small TV camera and a system of mirrors. (See Multiplexer.)
Floor:	Studio, or studio floor.
Floor director:	In charge in the studio during production; a vital link between the director and talent; cues talent, and supervises all floor activities during telecast; also called floor manager or stage manager.
Floor Men:	Studio production crew in charge of setup, set dressing, and other important production jobs during the telecast; also called stage hands, facilities men, or grips.
Focus:	Picture is in focus when it appears sharp and clear on the screen.
Follow focus:	Rotating the camera focus control to maintain a sharp image while following a moving subject.

Gain:	Level of amplified sound; "riding gain" means to keep the volume at a proper level.
Go to black:	Picture is gradually faded out; same as fade to black.
Grid:	A metal frame or tracks hung from the studio ceiling on which the majority of the studio lights are mounted.
Group shot:	Camera framing to include a group of people.
Image-orthicon:	Very sensitive type of camera pickup tube used in the RCA cameras on campus.
Intercom:	Intercommunication system among studio and control room personnel. Headsets are part of intercom system.
I-O:	Image-orthicon.
ITV:	Instructional television.
Lens:	Optical lens, essential for projecting an image on the television pickup tube; lenses come in different sizes.
Lens turret:	Round plate mounted on the front of a camera holding up to five lenses. The turret rotates so each lens can be moved into the "taking position."
Level:	(1) Audio: voice level (volume). (2) Video: white and black picture level, measured in volts.
Lighting Control Board:	Consists of dimmers, switches and patch panel and is used to operate and control the studio lights.
Light level:	Light intensity or amount of light.
Line monitor:	(sometimes called Master monitor.) Monitor that shows only the picture that is going out on the air or to the video tape machine.
Master monitor:	See Line monitor.
Monitor:	(1) Television receivers connected to each video source and used in the television control room; (2) Loud speakers used in TV control room for program sound; (3) TV receiver in the studio showing the same picture as the line monitor.

Multiplexer:	System of movable mirrors or prisms that directs images from several projection sources into one stationary television camera. Part of the film and slide chain.
Pan:	Horizontal turning of the camera body.
Pan and tilt head:	Swivel base upon which the camera body is mounted. Allows the cameraman to move the camera body from side to side (pan) to aim it up or down (tilt).
Pedestal:	Type of camera mount that permits a raising and lowering of the camera.
Pickup Tube:	Sensitive electronic tube inside the television camera body which receives the image seen by the camera's lens and converts it instantaneously into electronic signals which reappear as a picture on a TV screen (e. g., Image-orthicon (I-O) and vidicon).
POT:	Potentiometer; volume control knob or fader lever on audio control consoles.
Producer:	Creator and organizer of television shows; usually in charge of all financial matters.
Racking:	Rotating one of several TV camera lenses into the taking position.
Racking handle: (Turret handle)	Squeeze-grip handle on a turret camera, located on the rear of the camera body. Used by the cameraman to rotate or rack desired lens into the taking position.
Script:	Specifies what words, pictures, sounds and actions should occur in a program, and how long each individual part of the program should last.
Set:	Arrangement of scenery and properties (props) in a television studio.
Set up:	Preparation of the studio before the actual production begins.
16mm motion picture film:	The common size film used in film and slide chains.
Stretch:	Slow down.

Strike:	Disconnect, dismantle, and put away all equipment and props used in the studio after the production is finished.
Super:	Superimposition; simultaneous showing of two or more full pictures on the same screen. Same as mid-point of a dissolve.
Switcher:	(1) A panel with certain buttons that allows switching from one video source to another. (2) Crew member who is operating this piece of equipment.
Take:	Instantaneous switch from one TV picture to another.
Take-up Reel:	Reel that takes up film or tape from the supply reel. Must be the same size as the supply reel in order to maintain proper film or tape tension.
Taking position:	The position on the front of the camera body which determines which lens is actually taking the picture. Sometimes called "on-the-air lens" position.
Talent:	Collective name for all television performers and actors appearing in a TV production.
Tally light:	Small red light or lights on the camera, indicating when the camera is on the air.
Tape:	Plastic ribbon, approximately 1/1000 inch thick, varying in width from $\frac{1}{4}$ inch to 2 inches; one side is coated with iron oxide (dull side); it is used to record magnetic impulses from video or audio sources.
T. D.:	Technical director; in charge of technical studio crew. Usually does the switching during a telecast. Also called switcher.
35mm (or 2" x 2") slides:	The common size slide used in film and slide chains.
Tilt:	Pointing the camera up or down.
Truck:	Lateral movement of the camera dolly and camera.
Turret:	A rotatable metal plate located on the front of a camera body to which the camera lenses are attached. Commonly, four different size lenses are mounted on it. One of the two basic lens configurations used in television. The other is a zoom lens.

Video:	Picture portion of a telecast.
Video tape recorder (VTR):	Electronic recording machine that records and plays back television programs or portions of programs.
Vidicon:	Special camera pickup tube that is less sensitive but more durable than the I-O tube; frequently used in closed-circuit operation and in television film chain cameras. Used in Sarkes-Tarzian as well as Sony and other small TV cameras on campus.
Viewfinder:	Small television set on the back of the camera in which the cameraman can see the picture he is photographing.
VU meter:	Volume Unit meter; audio meter indicating the volume level of sound.
Zoom:	To operate a zoom lens.
Zoom lens:	Single lens which can be used to make a subject farther away from the camera appear to come continuously closer and, conversely, a close object more continuously farther away. One of the two basic lens configurations used in television. The other is the turret mounted lens assembly.

APPENDIX I

STUDENT ATTITUDE QUESTIONNAIRE

Instructional Unit Analysis Questionnaire

(Instructional unit'' refers to the entire package of pre and post-test, video tapes, and the guidebook.)

1. Were the objectives of the instructional unit clear to you?

Ambiguous	1	2	3	4	5	6	Clear

2. Did the instructional unit attract and hold your interest?

Dull	1	2	3	4	5	6	Interesting

3. Did the instructional unit build on your previous knowledge, skills or experience?

Unrelated	1	2	3	4	5	6	Related

4. Was the subject matter presented in this instructional unit appropriate for your present level of training?

Inappropriate	1	2	3	4	5	6	Appropriate

5. Did the content of the video tapes and the guidebook relate directly to the main objectives of the instructional unit?

Unrelated	1	2	3	4	5	6	Related

6. Was the content presented in a well organized, systematic pattern?

Disorganized	1	2	3	4	5	6	Organized

7. Were the important ideas or procedures clearly emphasized?

Vague	1	2	3	4	5	6	Clear

8. Did the instructional unit attempt to present too much material to be learned at one time?

Too much material	1	2	3	4	5	6	Too little material

9. Were new facts, ideas, terminology, or procedures introduced at a <u>rate</u> which permitted you to learn them?

1	2	3	4	5	6

Too slow — Too fast

10. Did the instructional unit provide for adequate repetition of the important content? (e.g., repetition with variation, exact repetition, summaries, outlines, etc.)

1	2	3	4	5	6

Inadequate — Adequate

11. Was the method of presentation (video tapes and guidebook) suitable to the subject matter?

1	2	3	4	5	6

Inappropriate — Appropriate

12. Was the verbal difficulty of the materials appropriate considering your educational level and previous experience?

1	2	3	4	5	6

Inappropriate — Appropriate

13. Did the narrator contribute to the effectiveness of this instructional unit? (i.e., tone of voice, manner of speech, or speed of delivery, etc.)

1	2	3	4	5	6

Detracted — Contributed

14. Was the sound track clearly audible?

1	2	3	4	5	6

Inaudible — Audible

15. Was the information presented in the guidebook well integrated with that presented on the tapes?

1	2	3	4	5	6

No integration — Integration

If you have any additional comments concerning the instructional unit, we would greatly appreciate having them. Please use the back of this page. Thank you for your cooperation.

APPENDIX J

FACULTY ATTITUDE QUESTIONNAIRE

INSTRUCTIONAL UNIT ANALYSIS QUESTIONNAIRE

Instructor Form

Please complete the following questionnaire, circling the number between the two descriptors which most closely reflects your response to each question. Your answer is correct if it expresses your own idea. Be sure to answer every question. The term, "instructional unit," refers to the entire package of pre and post-tests, video tapes, and the guidebook.

1. Are the objectives of the instructional unit clear?

1	2	3	4	5	6
Ambiguous					Clear

2. Will the instructional unit attract and hold the interest of the target audience (beginning Television-Radio students)?

1	2	3	4	5	6
Dull and Boring					Very Interesting

3. Does the instructional unit build on previous knowledges, skills, or experience of the target audience?

1	2	3	4	5	6
No Relation					Integrative

4. Is the subject matter presented in this instructional unit appropriate for the Television-Radio student?

1	2	3	4	5	6
Not Appropriate					Appropriate

5. Does the content of the video tapes and the guidebook relate directly to the main objectives of the instructional unit?

1	2	3	4	5	6
Unrelated					Appropriate

6. Is the content presented in a well-organized, systematic pattern?

1	2	3	4	5	6
Confused					Organized

7. Are the important ideas or procedures clearly emphasized?

1	2	3	4	5	6
Vague					Clear

8. Does the instructional unit attempt to present too much material for the student to learn?

1	2	3	4	5	6
Too Much Material					Too Little Material

9. Are new facts, ideas, terminology or procedures introduced at a rate which will permit learning by the students?

1	2	3	4	5	6
Too Slow					Too Fast

10. Does the instructional unit provide adequate repetition of the important points? (e.g., repetition with variation, exact repetition, summaries, outlines, etc.)

1	2	3	4	5	6
Too Little Repetition					Too Much Repetition

11. Is the method of presentation (video tapes and guidebook) suitable for the objectives?

1	2	3	4	5	6
Inappropriate					Appropriate

12. Is the verbal difficulty of the materials appropriate to the age, educational level, and previous experience of the students?

1	2	3	4	5	6
Inappropriate					Appropriate

13. Does the video tape recording (tone of voice, music, manner of speech, etc.) contribute to the effectiveness of the system?

1	2	3	4	5	6
Detracts					Contributes

14. Is the sound clearly audible, easy to hear?

1	2	3	4	5	6
Inaudible					Audible

15. Is the information presented in the guidebook well integrated with that presented on the video tapes?

1	2	3	4	5	6

No Integration — Closely Integrated

16. Is the information in the instructional unit technically accurate?

1	2	3	4	5	6

Contains Many Errors — Contains No Errors

17. What is the relative importance of any inaccuracies in the instructional unit?

1	2	3	4	5	6

Crucial Importance — Little Importance

18. Is the content of the instructional unit up-to-date?

1	2	3	4	5	6

Out of Date — Up to Date

19. Is it highly probable that the information or procedures presented in the instructional unit will be confirmed or rewarded by subsequent experience of the student?

1	2	3	4	5	6

No Confirmation — Rewards

20. Is it highly probable that the students will be able to use or apply the information or procedures presented by the instructional unit?

1	2	3	4	5	6

Not useful — Useful

21. Could the subject matter be treated more effectively through some other format? (e.g., lecture, demonstration, textbook, etc.)

1	2	3	4	5	6

Less Effectively — More Effectively

22. Could the subject matter be taught as effectively but more economically by some other means?

1	2	3	4	5	6

Less Economically — More Economically

APPENDIX K

INDEX OF DIFFICULTY COMPARISON FOR
EXPERIMENTAL AND CONVENTIONAL GROUPS

Test item	Index of Difficulty: Experi-mental group	Index of Difficulty: Conven-tional group	Percentage of difference between groups	Items to be isolated for discussion	Objective that item relates to
A 1	42	81	34	#	I-f
2	21	38	17		21,1-z
3	53	88	35	#	I-t
4	58	38	20	#	21
5	21	25	4		I-o
6	42	56	14	#	1-g
7a	37	50	13		I6
7b	21	6	15		16
8	37	13	24		I-n
9	53	19	34	#	7
10	16	50	34		22
11	26	19	7		24
12	58	94	36	#	I2
13	47	75	28	#	I-h
14	21	6	15		20
15	32	56	24	#	22
16	32	88	56	* #	1-L
17	42	56	14	#	20
18	11	-0-	11		8
19	42	25	17		1-j, 7
20	84	75	9	#	1-i
21	32	63	31	#	I-L
22	-0-	25	25		3-b
23	37	6	31		17
24	63	50	13	#	1-v
25	47	44	3		17
26a	-0-	6	6		8
26b	32	50	18		8
27	11	13	2		I-w
28	26	50	24		1-L
29	11	6	5		1-K, 21
30	16	-0-	16		3-a
31	58	31	27	#	7
32	21	50	29		3-a
33	58	69	11	#	1-p
34	37	50	13		6
35	74	94	20	#	3-c
36a	32	69	37	#	9
36b	21	31	10		9
37	32	50	18		1-u

continued

APPENDIX K--continued

Test item	Index of Difficulty		Percentage of difference between groups	Items to be isolated for discussion	Objective that item relates to
	Experi-mental group	Conven-tional group			
38a	68	88	20	#	15
38b	84	94	10	#	15
39	32	75	43	* #	1-m
40	58	100	42	* #	I-q
41	11	6	5		I-aa
42	63	13	50	* #	I-b
43	5	44	39		I-d, 8
44	21	38	17		14
45	5	13	8		5
46	74	31	43	* #	I-x
47	21	81	60	* #	1-r
48	21	38	17		6
49	26	6	20		1-c, 21
50	63	63	-0-	#	13
51	42	50	8		I-a
52	5	6	1		I-y, 21
53	42	19	23		14
54	37	31	6		1-e
55	26	19	7		22
56	37	19	18		24
57	26	13	13		11
B. 1	5	-0-	5		-
2	63	19	44	* #	4-a
3	37	6	31		4-b
4	63	19	44	* #	4-c
5	26	69	43	* #	-
6	21	88	67	* #	-
7	74	94	20	#	4-d
8	47	56	9	#	-
9	79	31	48	*	4-e
10	89	88	1	#	-
11	47	63	16	#	4-f
12	47	44	3		-
13	74	100	26	#	4-g
14	47	31	16		4-h
15	58	75	17	#	4-i

continued

APPE

Tes
ite

1
1
1
1
2
2
2

C.

D.

E.

F.

APPENDIX K--continued

Test item	Index of Difficulty: Experi- mental group	Index of Difficulty: Conven- tional group	Percentage of difference between groups	Items to be isolated for discussion	Objective that item relates to
16	21	6	15		4-j
17	32	50	18		4-k
18	42	6	36		-
19	21	13	8		4-l
20	32	13	19		-
21	63	88	25	#	4-m
22	63	100	37	#	4-n
C. 1a	5	-0-	5		5
1b	16	19	3		5
2a	32	6	76		5
2b	47	31	16		5
3a	21	-0-	21		5
3b	26	6	20		5
4a	37	88	51	* #	5
4b	42	88	46	* #	5
5a	16	19	3		5
5b	26	19	7		5
6a	11	-0-	11		5
6b	32	19	13		5
7a	21	88	67	* #	5
7b	26	94	68	* #	5
D.	32	25	7		11
E. 1	5	-0-	5		11
2	37	88	51	* #	11
3	5	44	39		11
4	11	6	5		11
5	53	94	41	* #	11
6	5	6	1		11
7	32	100	68	* #	11
F. 1	37	88	51		2-e
2	47	75	28		2-e
3	11	13	2		2-a,b
4	11	25	14		2-e

continued

APPE

Test
item

G. 1
2
3
4
5
6
7

H. 1
2
3
4
5

I. 1
2
3
4

J. 1
2
3
4
5

K.

L.

M.

N.

O.

APPENDIX K--continued

Test item	Index of Difficulty: Experimental group	Index of Difficulty: Conventional group	Percentage of difference between groups	Items to be isolated for discussion	Objective that item relates to
G. 1	42	50	8		2-a
2	32	31	1		2-a
3	32	44	12		2-a
4	47	100	53	* #	2-a
5	21	19	3		2-a
6	16	13	3		2-a
7	16	25	9		2-a
H. 1	26	75	49	* #	2-c
2	26	50	79		2-c
3	37	56	19		2-c, 22
4	37	56	19		2-c, 22
5	21	69	48	*	2-e
I. 1	58	69	11	#	2-a,b
2	47	75	28	#	2-a,b
3	68	94	26	#	2-a,b
4	11	6	5		2-a,b
J. 1	74	75	1	#	2-b
2	26	6	20		2-b
3	74	56	18	#	2-b
4	37	31	6		2-b
5	37	19	18		2-b
K.	26	19	7		22,23
L.	32	25	7		18
M. 1	26	19	7		19
2	68	75	7	#	19
N. 1	32	31	1		19
2	47	75	28	#	19
O. 1	58	31	27	#	21
2	58	31	27	#	21

continued

APPENDIX K--continued

Test item	Index of Difficulty: Experi- mental	Index of Difficulty: Conven- tional group	Percentage of different between groups	Items to be isolated for discussion	Objectives that item relates to
3	16	13	3		21
4	16	13	3		21
5	16	19	3		21
6	16	19	3		21
7	26	19	7		21
8	26	19	7		21
9	21	25	4		21
10	21	25	4		21
P. 1	42	13	29		10
2	63	25	38	#	10
3	47	25	22		10
Q 1	42	13	29		10
2	37	6	31		10
3	37	6	31		10

* Difference in index of difficulty between groups greater than 40 (41 to 100)

\# One or both groups have an index of difficulty to over 50 (51 to 100).

APPENDIX L

INSTRUCTIONAL UNIT OBJECTIVES

Instructional Unit Objectives

All of the following objectives will be accomplished according to the information provided to the student in the instructional unit (i.e., video tapes and guidebook). The student will accomplish the objectives on a "pencil and paper" test with a ninety-minute time limit, without the aid of references. All objectives refer to television production, and the equipment used for production, at the ITV studios, Michigan State University.

1. When given a description (in the form of definition, function, use, special advantage or characteristic) of each of the following items, the student will supply the correct item for each description:

   a - Camera mount
   b - Dissolve
   c - Dolly
   d - Headset (intercom)
   e - Lens turret
   f - Lighting control board/Dimmers
   g - Line monitor
   h - Locking pin on counterbalanced pedestal mount
   i - Locking ring on counterbalanced pedestal mount
   j - Multiplexer
   k - Panning
   l - Panning handle and its adjustments
   m - Pedestal type camera mount
   n - Racking
   o - Script
   p - Set-up
   q - Steer 1 function on camera mounts
   r - Steer 3 function on camera mounts
   s - Steering handle on the crank-type pedestal mount
   t - Steering wheel on the counterbalanced pedestal mount
   u - Strike
   v - Take
   w - Talent
   x - Tally lights
   y - Tilting
   z - Truck
   aa - Zoom lens

2. When presented with a graphic representation of:

   a - Sarkes Tarzian camera
   b - RCA TK 60 camera
   c - Pan and tilt (cradle) head
   d - Crank-type pedestal mount
   e - Counterbalanced pedestal mount:

Instructional Unit Objectives--continued

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the student will correctly identify these pieces of equipment and their components.

3. When questioned, the student will be able to specify the function or advantage of:

   a - Pedestal type camera mounts
   b - Zoom lens
   c - Unique zoom lens mounting on the Sarkes Tarzian camera.

4. When presented with each of the following terms in printed form, the student will write a correct definition for each:

   a - Aspect ratio
   b - Black
   c - Burn-in
   d - Cut
   e - Essential area
   f - Follow focus
   g - Image-orthicon
   h - Light level
   i - Pickup tube
   j - Pot
   k - Producer
   l - "Super"
   m - Taking position
   n - Vidicon

5. When questioned, the student will list the basic members of a television production crew and a primary responsibility of each member.

6. When questioned, the student will identify the common size motion picture film and common size slide used in television production; i.e., film chain.

7. When questioned, the student will identify the major components found in a basic film chain.

8. The student will demonstrate his/her knowledge of how to strike a camera.

9. When questioned, the student will state the name and location of the apparatus used to mount the majority of the studio production lights.

Instructional Unit Objectives--continued

10. The student will demonstrate his/her understanding of the basic two bank video switcher by indicating on printed diagrams of the switcher the correct responses to switching commands. This will include only takes, dissolves, fades, and supers.

11. When presented with a graphic representation, the student will identify the twelve basic hand signals employed by the floor director and state where (location in the studio) they should be given.

12. The student will demonstrate in writing his/her knowledge of how to correctly set the focus controls on the demonstration camera equipped with a zoom lens so a stationary subject will stay in focus throughout a full zoom on a stationary camera.

13. The student will demonstrate in writing his/her knowledge of how to correctly manipulate the zoom control on the demonstration camera in order to zoom in and zoom out.

14. The student will state in writing the correct direction to turn the camera focus knob on the demonstration camera in order to retain sharp focus when a subject and camera move closer together and when a subject and camera move farther apart.

15. The student will identify the two basic lens configurations demonstrated in the instructional unit.

16. When questioned, the student will state what a television camera viewfinder is and where on the camera it is located.

17. When questioned, the student will demonstrate in writing that he/she knows why a camera should never be aimed at a light and why it should be capped when not in use.

18. When given a graphic representation of a close-up and a wide angle shot, the student will indicate which shot was taken with a long lens and which with a short lens.

19. When given a graphic representation of objects poorly framed in a camera viewfinder, the student shall indicate the correct camera movements required to center each object in the viewfinder without changing the size of the image.

Instructional Unit Objectives--continued

20. When questioned, the student will demonstrate his/her knowledge of the correct procedure to follow when racking lenses on a television camera.

21. When given a graphic representation and a written description of the basic camera moves (i.e., truck, dolly, pan, tilt, pedestal up and down) the student will identify those moves in writing.

22. The student will demonstrate in writing his/her knowledge of the results of having the pan and tilt head improperly adjusted, and what knobs are used to make a proper adjustment.

23. When given a graphic representation of the front of the Sarkes Tarzian camera, the student shall identify the position of the "taking lens."

24. When questioned, the student will demonstrate his/her knowledge of how the picture on a TV camera viewfinder is adjusted for contrast and brightness.