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CHAPTER 1

INTRODUCTION

1. Context of the Problem

Media research has recently shifted from its emphasis on comparing the relative effectiveness of various media to determining more effective means of producing and learning from instructional media. That is to say, a major shift in media research has been aimed at improving the quality of instructional media.

Toward this end, a major area of concentration has been the efficient deployment and development of various types of adjunct activity designed to supplement instructional media. In the past, studies have deployed these activities prior to a media presentation, and as such were labelled, "orienting stimuli" (Duchastel and Merrill, 1973); during a presentation; at intervals or pauses in a presentation, "spaced" (Micheal and Maccoby, 1953); or at the end of a programme, "massed" (Scanlon, 1967). Combinations of these temporal conditions have also been compared: e.g. spaced preview vs. spaced review. Some of the types of adjunct activity studied involve the use of: questions; behavioural objectives; review guides which differ from repetition in that review refers to a supplementary adjunct to the original presentation, while repetition may occur

"during the original learning" (Reynolds and Glaser, 1964, p. 297); organizing materials used to orient the learner, or to structure or explain the original presentation; or simply, the absence of activity in the form of rest breaks. This list is not exhaustive; the intention here is simply to set down a range of adjunct activities already studied. A common goal of most of the studies in this area was the attempt to achieve more effective learning as measured by increased recall and longer retention of factual information.

The present study was an attempt to further research in this area in two ways: to provide a further means of evaluation of the relative learning effectiveness of deploying adjunct viewing guides at pauses in (spaced) or during an instructional video tape; and secondly, to determine the effectiveness of a relatively unstudied type of adjunct activity, a review guide which stresses the principles involved in the original video tape presentation.

2. Problem Statement

The study herein sought to determine the more efficacious of two temporal conditions for the deployment of viewing guides to video training tapes. It also endeavoured to determine and compare the relative effectiveness of two types of adjunct activity - viewing guides - on learning from video training tapes.

Use of adjunct activity during an instructional media presentation has been by far the least studied of the temporal conditions listed in the previous section.

Furthermore, in reviewing the literature no studies were found that compared the above condition with spaced review. The first experiment of this study dealt with this problem; that is, a comparison and determination of the relative effectiveness of a viewing guide, worked on during the presentation of a video training tape; and a viewing guide worked on at pauses (spaced review) in the tape's presentation.

Training tapes or films typically contain a good deal of factual information and too, there usually exists a pattern or patterns which underlie the factual information and make possible a more complete understanding of this data. The patterns may be characterized by principles, rules, processes, laws, theorems, approaches, and/or methods. An adjunct activity emphasizing the patterns (hereafter, "principles-stressed" viewing guide) was developed to see if it might have a positive effect on learning from video training tapes when combined with the traditional, factual, review guide (hereafter, viewing guide).

The viewing guide reviews in print form most of the information contained in the film or tape. By contrast, the combined-form adjunct guide, "principles-stressed" viewing guide was designed to do all that a viewing guide

would but would also seek to explain, organize and give form to the type of factual data common to audiovisual training material. The "principles-stressed" viewing guide then, structures as well as reviews the examples presented in the video training tape by emphasizing the principle(s) which subsumes a series of examples.

The second experiment examined the relative effectiveness of these two types of viewing guides on learning from video training tapes. That is, the use of a viewing guide wherein information presented on a tape and reviewed in print was compared with the use of a "principles-stressed" viewing guide wherein the information on tape was organized and explained in terms of some underlying patterns which might be characterized by conventions, rules, processes, approaches and/or methods.

A further problem related to the second experiment was to determine which of the two types of viewing guides resulted in greater long-term learning, or retention, as well as immediate recall of information.

Finally, the study sought to determine whether or not these viewing guides resulted in more effective learning than the tape-only approach.

3. Significance of the Study

Griffin-Beale (1977) points to a growing trend of using video cassettes in packaging instructional viewing programmes and to their potential advantages of replay, pause, and the use of adjunct activities. Yet there still seems to exist a strong tendency among students to associate video with entertainment and there exists a sense of irritation with any demands for real concentration (Enstam, 1975). The use of some form of adjunct, such as viewing guides, requires a participation unlike that of entertainment television; they are a means of achieving Schramm's requisites for effective television: "Simple television: active students" (1972, p.67). Yet as Carter (1968) points out there is a propensity for educational research, in spite of significant findings, not to be applied. Adjunct guides to audiovisual material however, are relatively simple and inexpensive techniques that can be developed for effective use by individual instructors or resource centres and thereby circumvent the more formal cycles of research to application.

4. Overview

This first chapter placed the present study in context with the larger area of media research, stated in a general way the problems that this study has analyzed, and presented some of the reasons for doing so. The following

chapter reviews research relevant to the various aspects of this study. Chapter 3 sets out in a detailed way the methods used for this study; chapter 4 examines the results; and chapter 5 states overall conclusions, specific areas of the study are discussed and some recommendations made for further research.

CHAPTER 2

REVIEW OF RELATED RESEARCH

1. Research on Repetition

Common to nearly all of the studies reviewed in this chapter is the use of repetition. Reynolds and Glaser (1964) made the distinction between repetition, as that which occurs in the original presentation and review as that which occurs as an adjunct to the original learning. The conclusion arrived at as a result of this study was that repetition as defined above could effectively be replaced by short, spaced review of preceding material. While the above distinction forms useful operational definitions, repetition in the broader sense remains a major learning principle extant in both conditions.

There are numerous studies to support Lumsdaine's claim (1963) that repetition is a useful and needed principle in assuring mastery. Among these five were reviewed by Ausubel and Youseff (1965) and three by Reynolds and Glaser (1964). McFavish (1949) demonstrated the positive effect of repetitive film showings, with an upper limit of three presentations, on learning for less intelligent students. This last study then recognized the diminishing effectiveness of repetition beyond a specific limit of three presentations.

However, Ausubel (1963) stated that repetition or drill need not necessarily be rote and that mastery of content is more easily predicted with drill as compared with more diversified but less structural learning situations. Ausubel (1968) qualified the type of mastery to be expected from repeating learning material by discerning between short and long-term retention:

....sheer repetition would play a more significant role in the learning and short-term retention of discrete and arbitrary associations, largely isolated from cognitive structure, than it would in the learning and longer-term retention of materials that can be meaningfully incorporated within that structure. (p.277)

Miller (1974, p.27) assigns to repetition or drill the value of aiding learners, "in refining or maintaining skills learned, but in need of re-development". Studies by Ausubel (1966), Frase (1968), Kaplan and Simmons (1974) and those reviewed in subsequent sections of this chapter tend to confirm this notion. Gagne and Briggs (1974, p.8) maintain that repetition may be viewed as a "practical procedure", a necessary prerequisite for other conditions of learning and "not as a fundamental condition of learning" (by itself).

2. Temporal Conditions Affecting Use of Adjunct Activity

While the expected benefits of repeating learning materials are relatively clear, predictions as to the

relative learning effectiveness of repetitive types of learner activity adjunct to the original learning deployed at varying points in the learning process (e.g. before, during, at intervals, as a summary, or in combinations) are somewhat less clear. The situation is further confused by the varying forms the adjunct activity takes as well as the content and presentational format of the original learning. However, there are some general patterns to be found in the research.

Research into orienting stimuli as an adjunct activity, in particular the use of behavioural objectives, have demonstrated mostly favourable results. Duchastel and Merrill (1973) reviewed the literature on behavioural objectives and learning and found all such studies with only one exception favoured their use. Ausubel and Fitzgerald (1961, 1962) found superior results with advance organizing material in addition to prose as compared with prose alone. Vandermeer (1951) reported significantly-superior long-term retention, a three-month period, from film when the subjects used a study guide both before and after the presentation. Kaplan and Simmons (1974) confirmed these results but also discovered that learning was even more effective, particularly incidental learning, when the objectives followed the text. The process of review was deemed more effective than that of search and selection in this instance.

Rothkopf and Bisbicos (1967) compared the use of

questions immediately before and after sections in a piece of prose, that is, spaced preview versus spaced review. A study by Frase (1968) confirmed these results while noting that frequent use of questions worked best for the retention of specific information and a less frequent number of questions worked well for general retention. Frase also noted that a close proximity of questions to the relevant content was not critical. Kantor (1960) inserted questions in instructional films with no significant difference. However, the majority of the studies reviewed in the next section do support the use of spaced review.

The evidence found in the literature concerning the use of adjunct activity occurring at the end of the original learning, usually labelled, blocked or massed review, was slightly less consistent. Scanlon (1967) found blocked review, a film-strip adjunct to a programmed text, to be significantly more effective than spaced review though there were no significant differences found for long-term retention. Kaplan and Simmons (1974) found superior, though not significantly so, results from a massed review of objectives of a piece of prose as contrasted with an introductory preview. McGuire (1961) on the other hand found spaced review to be significantly more effective than massed review. While Ausubel (1966) found no significant differences between an early versus a delayed massed review, he was able to speculate as to the advantage of the former,

"a superior consolidating effect" and of the latter, "superior re-learning of forgotten material" (p.223).

There are further inconsistencies in those studies which have dealt with adjunct activity during the presentation of instructional media. Lavin (1971) found completed outline notes superior to blank outline notes which in turn were superior to plain paper notes used while viewing the film. O'Meara (1975) found significantly superior results when guides were completed by students both at pauses in and during presentation of the video tape than when students did not use an adjunct guide at all. Ash and Carlton (1951), found that note taking during a film presentation actually interfered with the learning. Travers (1964) provided a possible explanation by pointing out the disadvantages of using two channels to simultaneously transmit redundant information. While Travers' study concerned itself with the auditory and visual channels, his findings would certainly be relevant to a situation involving simultaneous use of audiovisual material and a repetitive adjunct activity, like note taking. This situation then requires the viewer to switch back and forth between viewing and listening to the A-V presentation and listening to the A-V presentation and writing notes. Yet still the favourable results of Lavin's study demonstrate the possible effectiveness of learning from instructional film by taking notes during its presentation.

Psychological studies on perception support some of the general findings of the above studies on the temporal conditions affecting learning with adjunct activity. Grindley and Townsend (1972) found that accuracy was improved by either an introductory preview or a massed review of instructions of what to look for or remember. Laurence and Laberge (1956) reported superior results when observers were cued immediately following a particular visual, a type of spaced prompting. Chapman (1932) and Neisser (1964) determined that prior instruction to look for specific visuals resulted in quicker and more accurate perception of intended material than without prior instruction; but, incidental learning tended to be considerably less.

3. Spaced Review and Practice

Kimble and Wulff (1953) used an adjunct guide ("practice booklet") which was deployed at pauses in an instructional film, and did not produce the expected significant results, but did favour participation. Micheal and Maccoby (1961) however, conducted a very similar study which did in fact produce significant results ($< .01$); this study also determined that a knowledge of the correct response with spaced practice resulted in significantly more learning than without this feedback. These results and the lack of significant differences for overt versus

covert practice were further confirmed by Maccoby, Michael and Levine (1961). Allen (1957) pointed out that in a review of twenty-six student participation studies the most effective techniques were review, practice and knowledge of results.

Ausubel and Youseff (1965) reported spaced review as a significantly-effective factor in learning from prose as compared with no review. Reynolds and Glaser (1964) found that a spaced review had a significant facilitation in retention of reviewed materials as compared with massed repetition. Coldevin (1975) and Edwards (1974) reported that spaced review, after units of the original learning, operationally defined for these studies only as massed review, was a significantly-effective factor in learning from instructional television. These studies also reported that spaced review after sub-units of the original learning with a five-second, rest period to be even more effective.

Ash (1950) found that spacing the presentation of instructional films over a period of three or four days resulted in more significant learning than when the films were shown at one time. A similar result was found by Pockrass (1961) who found that a one-minute pause or rest period in a thirty-minute film produced significant results.

4. Principles-Stressed Adjunct Activity

Only one study was found which studied the effectiveness of stressing the principles in an instructional media presentation. Anderson and others (1951) in a year-long study compared films bolstered by additional emphasis on the principles and a film-only approach in the learning of a high-school biology course. Though the results were not significant, they did favour the "principles-stressed" approach. Gropper's study (1966) on learning science principles and concepts demonstrated the advantages of visual presentation followed by an explanation in print form.

While both of the above studies stressed principles already described in the original presentation, part of the study herein sought to stress those principles underlying the factual information presented in a video training tape.

5. Summary

While most of the studies reviewed thus far support the use of some form of repetition of the original presentation as an effective teaching principle, the most efficacious point (s) in the learning process to deploy repetitive adjunct activity is still in question. A problem in analyzing the results of many of these studies, pointed out,

in part by Lavin (1971), was that their independent variables combined those activities which took place prior to the original presentation, during its presentation or at pauses in its presentation or after its completion into a single factor. However, of these four temporal conditions - introductory or orienting stimuli, adjunct activity during the original presentation, at spaces in the presentation, or massed review - adjunct activity during the original presentation was by far the least studied and yet, if effective, as demonstrated by Lavin (1971) and O'Meara (1975), involved the least time in achieving significantly-improved learning from the original material.

The adjunct viewing aids developed for the study herein incorporated some of the techniques found to be effective in previous studies. The techniques which were used in the development of each of these guides were: review, practice and knowledge of the correct response. The technique of placing additional emphasis on principles was used with only one of the viewing guides.

The overall goal common to each of the guides was to increase the effectiveness of learning from video training tapes. By learning was meant the acquisition of specified facts; that is, the relating of one or more named objects to an already-known referent and thereby effecting an intended change brought about in the learner.

CHAPTER 3

METHODOLOGY

1. Objectives and Hypotheses

The overall objective of this study was to determine some means of increasing learning effectiveness from video training tapes. More specifically, the objectives were:

- 1.) To design and develop three types of viewing study aids to video training tapes.
- 2.) To show that a repetitive viewing guide worked on at pauses in, rather than during, the presentation of a video training tape would result in more effective learning.
- 3.) To determine whether a "principles-stressed viewing guide" worked on at pauses in the presentation of a video training tape resulted in more effective short-term learning than a viewing guide worked during the tape's presentation.
- 4.) To show that the use of a "principles-stressed" viewing guide worked on at pauses in the presentation of video training tapes would result in greater long-term learning than the use of a viewing guide worked on during a video training tape.
- 5.) To report the effectiveness of two types of adjunct activity, a repetitive and a "principles-stressed" viewing guide, on learning from video training tapes as compared with a tape-only approach.

1(a) Definitions of the Variables

Video Training Tapes: refers to two tapes from the "Sight and Sound" series on television production produced by the Minnesota Mining & Manufacturing Company, 3M. The two tapes used in this study were: "Lighting for Video Tape Production" (Tape No. 1) and "Camera Techniques for Video Tape Production" (Tape No. 2).

Viewing Guide: refers to a repetition in print form of the key points presented in the video tape. It required active student response but also provided reinforcement by means of a knowledge of the correct results.

"Principles-Stressed"
Viewing Guide:

combined all the elements of the viewing guide with a supplementary text emphasizing the principles (rules, processes, conventions, approaches or methods) and thereby organizing and explaining the underlying factual information. For example, one section of the second video tape presented a series of good examples of the effects of various

camera lens' adjustments. The corresponding section of the guide stressed the depth of field principle, - its inherent variables of lens aperture, subject distance and focal length - which organized and further explained the examples in the video tape.

During the Presentation: refers to the time at which an adjunct activity was worked on; that is, cues edited onto the tape indicated that viewer attention should briefly be directed to a viewing guide while the tape was showing.

At Pauses in the Presentation: refers to the time at which an adjunct activity was to be worked on. In previous studies, this condition was referred to as spaced review or spaced practice or simply a break or rest from the original learning. The "at pauses" condition of the study herein combined all three of these techniques.

Tape-Only Approach: refers to a short introduction to the tape by the instructor, followed by

a tape viewing without use of a guide.

Effective Learning: refers to student capability to acquire and store factual data by means of recalling an organized context of information to which newly acquired facts (items presented on tape) are related. (Gagné, 1974) Operationally this is defined as a total post-test score of 75% or better.

Short-Term Learning: refers to student ability to respond correctly to a performance test, measuring "effective learning," given just after presentation of the video tape.

Long-Term Learning: refers to student ability to respond correctly to a performance test, measuring "effective learning," given seven days after having viewed the tape.

1(b) Hypotheses

The following predictions were made concerning the results of the study herein:

- 1.) The use of a viewing guide worked on at pauses in the presentation of a video training tape will result in more effective learning than the use of a viewing guide worked on during the tape's presentation.
- 2.) The use of a "principles-stressed" viewing guide worked on at pauses in the presentation of a video training tape will result in equally-effective short-term learning but more effective long-term learning than the use of a viewing guide worked on during the tape.

- 3.) The use of viewing guides, worked on during or at pauses in the presentation of video training tapes will result in more effective learning than a tape-only approach.

1(c) Rationale for the Hypotheses

The justification for the first prediction was based on the results of those studies which favoured the use of adjunct activity worked on at pauses in the presentation of instructional video tapes, in particular, O'Meara (1975) and Coldevin (1975). The inferences of Travers study (1964) for the study herein, that the simultaneous use of audio-visual material and a repetitive adjunct guide might not be an effective learning strategy, form another basis of justification for the first hypothesis.

Studies by Anderson (1951) and Gropper (1966) supporting the efficacy of supplementary emphasis on the principles contained in a visual presentation form the empirical rationale for the second hypothesis. As regards a theoretical justification for the prediction of more effective, long-term learning from the "principles-stressed" approach, Ausubel (1968) concluded that while repetition alone was a useful strategy for immediate recall it was not as effective for long-term retention.

Finally, a good majority of the studies reviewed in the previous chapter supported some form of review in

learning from instructional media and therein lay some support for the third hypothesis.

2. Subjects

The subjects were selected from three intact classes at Concordia University, Montreal. Two of these classes were courses solely devoted to television production; the third class was a course in evaluating educational materials, however, one week of this six-week course was devoted to television production. The total sample, six subjects from one of the production classes and nine from each of the other two classes, consisted of twenty-four subjects. All but four of the subjects, who were completing their final undergraduate year, were graduate students.

Since several of the students attending these summer courses were not following a particular programme of studies and most subjects' academic backgrounds varied to the extent that it was not feasible to obtain individual records of academic achievement or I.Q. scores, the design of the study included various pretests which at least partially offset this limitation. The common denominators which applied to the sample used in this study were those of adult student of post-graduate status (with the exception of four people who were in their final undergraduate year) attending courses whose curricula involved to a greater or less degree television production.

Individual subjects from this sample were randomly assigned to one of two experimental (treatment) groups or to a control group. As this study involved two separate experiments using the same sample, subjects were rotated between the three conditions prior to the second experiment. This was done to control for a possible sequencing effect wherein familiarity of the procedures involved in a condition of the first experiment might have resulted in improved performance in a similar condition of the second experiment and not as a result of the condition itself.

3. Instructional Materials

A. Video Training Tapes

The video training tapes used in this study were commercially-produced and dealt with the subjects of lighting and camera techniques for video tape production. The objective of these tapes was not to provide the viewer with a sequential ordering of the steps necessary to achieve a successful television production, but rather a listing of the basic components comprising the various aspects of television production. Suggestions or hints to achieve certain effects, possible solutions to various problems, precautions to be taken, basic operational procedures etc. were listed in point form.

The format for this presentation involved a visual demonstration for nearly every example described narratively. Usually, though not always, after the presentation of each example there was a two or three second pause. Presumably, this was intended to distinguish one example from the next. This aspect of the tapes' format, not uncommon to training films or tapes, lent itself to the use of a viewing guide to be worked on during the tapes' presentation.

One version of each of the two tapes used in this study was edited so as to insert cues immediately after selected examples, thirty-eight in the first tape and forty-five in the second, that would appear in the upper, right-hand corner of the monitor as "GUIDE". Appendix C shows exactly where in the scripts these cues appeared.

The presentational format of the tapes also involved a division of the material into sections, ten in the first tape and seven in the second. A second version of each of the two tapes then was edited so as to insert instructions to the viewer to turn to the viewing guide between sections of the tapes. Appendix C also indicates where in the scripts these sections began and ended.

B. The Viewing Guides

There were three types of viewing guides used in this study: a viewing guide worked on during a tape was

compared with a viewing guide used at pauses in the tape for the first experiment and with a "principles-stressed" viewing guide used at pauses in the tape for the second experiment.

The viewing guide worked on during a tape was used with the edited version of the tapes on which cues were inserted. For each example cued on the monitor, the viewing guide contained a related description and an unrelated description. The related description was a partial repetition of that given on the tape and usually contained only two or three words. The viewer with this guide quickly distinguished between the two descriptions by checking one of them off with a pencil. As the correct response was given on tape immediately prior to the viewer's response, there was no need to provide verification of the correctness of the viewer's answer.

The viewing guide worked on at the end of each of the tape's ten sections (at pauses) in the first experiment required the viewer to make the same distinctions for each of the same examples reviewed by the viewing guide used during the tape. The correct answers for each item were given on the reverse sides of the guide.

The "principles-stressed" viewing guide in the second experiment also used practice questions at pauses in the tape but, in addition, emphasized the principles

underlying the examples in the tape. Since the content in the sixth section of the tape described various camera attachments or props, no principles were explained for that section only.

Each type of viewing guide then reviewed the material presented on tape by means of practice questions for which a knowledge of the correct response was given. Moreover, both types of viewing guides deployed at pauses in the tapes allowed slightly more time than was actually required for completion of a particular section of the guide. The amount of additional time varied with the students' ability to complete a section of the guide; but, ten seconds was usually the upper limit. Each of the viewing guides and the specific instructions for their use are contained in Appendix B of this report.

4. Data and Instrumentation

A series of three performance tests for each of the two experiments formed the data for analysis. These tests included a pre-test, a post-test and a delayed observation for each experiment; six tests in all were administered.

The tests were based on the content of the video training tapes and not any additional information contained in the viewing guides such as the underlying principles explained in one guide. Thirty-six items were constructed

from the first tape and forty-eight from the second.

The first step taken to ensure test reliability was to assign the odd-numbered items of those constructed for each of the two tapes to two tests and the even-numbered items to another two tests; that is, a pre-test and a post-test were formed for each tape. The delayed observation for each tape comprised the odd-numbered items from each of the original pools of questions.

Secondly, the pre- and post tests for each of the experiments were administered to half of the subjects in each of the three groups in one test order and the other half in a reverse test order. This was done to insure against the possibility that a pre-test, for instance, might have been more difficult than a post-test and that as a result performance improvement could not be solely based on a treatment or even the common task of viewing the tapes.

The third step involved a post-hoc analysis of each item as regards its degree of difficulty following the formula and the optimal value for each item of between 0.5 and 0.7 though a few slightly more difficult and slightly easier items were also accepted as outlined in Huntley (1974). Item analysis as regards its degree of discriminability followed the formula and adhered to the optimal value for each item of 0.67 or better with the exception of ten of the seventy-seven items which were accepted with slightly less values of between 0.60 and 0.66

as outlined in Tuckman (1972, pp.154-5).

The final step involved a determination of the tests' reliability. The Kuder - Richardson formula 20 (K-R 20), found in Tuckman (1972, p.139), was applied to the analysis of the six tests' reliability by examining their internal consistency. A lower limit on acceptable values for test analysis of 0.50 set down by Huntley (1974) was adhered to as indicated in Table 1, which summarizes the results of item and test analysis. Tables demonstrating the specific determinations of these results have been appended.

TABLE 1

Summary Table of the Results of Item and Test Analysis

EXPERIMENT 1			
	Pre-Test	Post-Test	Delayed Observation
Original No. of Items	18	18	18
No. of Items After Analysis	12	11	10
Reliability Values (K-R 20)	0.77	0.55	0.73

TABLE 1 (continued)

EXPERIMENT 2			
	Pre-Test	Post-Test	Delayed Observation
Original No. of Items	24	24	24
No. of Items After Analysis	15	12	17
Reliability Values (K-R 20)	0.84	0.75	0.69

5. Research Design

A pretest-posttest control group design was used in each of the two experiments. Pretests were used in this study since the subjects involved varied considerably in their prior knowledge of the subject matter. Two tapes of different subject matter were used so as to effect a greater content generalizeability than would the use of a single tape. The basic experimental design is outlined in Table 2.

TABLE 2

BASIC EXPERIMENTAL DESIGN

EXPERIMENT No. 1

Treatments	Sample					
Viewing Guide During The Presentation (Tape No. 1)	R	O ₁	X ₁	O ₂	O ₃	
Viewing Guide At Pauses In The Presentation (Tape No. 1)	R	O ₄	X ₂	O ₅	O ₆	
No Treatment (Tape No. 1 Only)	R	O ₇		O ₈	O ₉	

EXPERIMENT No. 2

Treatments	Sample					
Viewing Guide During The Presentation (Tape No. 2)	R	O ₁₀	X ₃	O ₁₁	O ₁₂	
"Principles-Stressed" Viewing Guide Worked On At Pauses In The Presentation (Tape No. 2)	R	O ₁₃	X ₄	O ₁₄	O ₁₅	
No Treatment (Tape No. 2 Only)	R	O ₁₆		O ₁₇	O ₁₈	

Subjects were randomly assigned (R) to one of two treatment groups: one which worked on a viewing guide during the presentation of tape no. 1 (X_1); the other which worked on a viewing guide at pauses in the presentation of the first tape (X_2); or they were assigned to a non-treatment (tape-only) control group. A pre-test (O_1, O_4, O_7) and a different post-test (O_2, O_5, O_8) were administered to each of the groups. For reasons described earlier, the test order was reversed for half of the subjects of each of the three groups. In addition, there was a delayed observation (O_3, O_6, O_9) of each group's performance one week later. The same procedure was used in the second experiment which compared the effectiveness of a viewing guide worked on during the presentation of tape no. 2 (X_3) with a "principles-stressed" viewing guide worked on at pauses in the second tape (X_4). As in the first experiment, a control group (non-treatment group) was employed.

The major drawback of the pretest-posttest control group design is the lack of control for a testing effect wherein the questions on the pre-test act as orienting stimuli to the subject content and thereby influence performance outcome. This weakness in design was unavoidable since the sample was relatively small in number and a baseline or standard common to all the subjects was unavoidable or untenable by any other means than a pre-test. However, since a control group was employed, this weakness

did not invalidate the results obtained by means of comparison.

The design of the study herein did control for history, selection and regression biases, and in part for the Hawthorne effect, any influence on Ss performance as a result of the special circumstances of the experimental situation. Since the present study was an integrated part of the curriculum for each of the courses, the effect was further lessened. In addition, the possibility of experimental mortality, the effect of a large proportion of the original Ss withdrawing before the completion of the study, becoming a factor was relatively slight because of the relatively short duration of these summer courses and the study itself. Even so, three of the original twenty-four subjects were not present to complete the delayed observation. Fortunately, however, each of these subjects was from a different one of the three groups.

6. The Procedure

The two experiments of this study were conducted separately with three intact classes, whose students formed the sample. The class teachers and their assistants administered the experiments in their usual classrooms and during class hours. They were administered in the first week of the courses in television production and the first

day of the week devoted to TV production in the course evaluating educational material. The procedure, however, was identical in each instance.

- (1) Packages of printed material, marked A, B or C, containing specific instructions, tests, and viewing guides were randomly distributed to members of each class. The following schemata shows in which condition each group was working during either experiment.

TABLE 3

Group Conditions For Each Experiment

EXPERIMENT No. 1

Package A	Package B	Package C
Tape No. 1 Uninterrupted Version		Tape No. 1 Spaced Version
Control Group	Exp. Group Viewing Guide <u>During</u> Tape	Exp. Group Viewing Guide <u>At Pauses</u> in Tape

EXPERIMENT No. 2

Package A	Package B	Package C
Tape No. 2 Spaced Version	Tape No. 2 Uninterrupted Version	
Exp. Group Principles- Stressed Viewing Guide <u>At Pauses</u>	Control Group	Exp. Group Viewing Guide <u>During</u> Tape

(2) The teacher or an assistant described the titles of the two tapes, the general purpose of the three packages, pointed out that specific instructions for each package were self-contained, and stated that his or her role as administrator of the experiments was simply to provide cues indicating the start or finish of a particular section. Instructions for the teacher and teacher instructions to the subjects are contained in Appendix A; the specific instructions for each package are contained in Appendix B.

(3) The cues for experiment no. 1 were simply to:

- (a) ask students to read the instructions,
- (b) start the pre-test, allowing about 6 minutes for completion,
- (c) start tape no. 1,
- (d) start the post-test, allowing about 6 minutes for completion.

(4) At the end of the first experiment, the instructor asked those students with package B to join the group with package C, as indicated in Table 3.

(5) The cues given to the subjects for experiment 2 were the same as those for the first experiment, except that about 8 minutes were allowed for

each test.

- (6) One week after these experiments, another test on each of the tapes was administered; the time allotted for their completion was about 15 minutes.

7. Data Analysis

Differences between the pre- and post-tests and the differences between the pre-tests and the delayed observations were calculated for both the experiments. These new scores were then converted into percentages for further analysis.

A one-way analysis of variance (Nie, 1975) was conducted for each of the four variables stated above, that is,

- (a) the differences between the pre- and post-tests for experiment one,
- (b) the differences between the pre-test and the delayed observation for experiment one,
- (c) the differences between the pre- and post-tests for experiment two,
- (d) and the differences between the pre-test and the delayed observation for experiment two.

The expected level of significance for these analyses had been designated at the 0.05 level.

A post ANOVA means analysis, the modified least significant difference test (Nie, 1975), was then conducted to determine which of the groups differed significantly.

CHAPTER 4

RESULTS

1. The First Hypothesis

The lack of significant differences at the predicted 0.05 level for a viewing guide deployed at pauses versus a viewing guide worked on during a video training tape is demonstrated below in the results of a one-way analysis of variance of the groups' pretest-posttest differences in the means.

TABLE 4

One-Way Analysis of Variance of Differences in the Means of Pre- and Post-Tests in Experiment One

Source	Sum of Squares	df	Mean Squares	F Ratio	F Prob.
Between Groups	.3345	2	.1673	2.977	.073
Within Groups	1.1801	21	.0562		
Total	1.5146	23			

However, application of the modified least significant difference procedure demonstrated a trend toward a significant difference ($p < .10$) between the viewing guide worked on at pauses in the presentation of a tape and the tape-only approach, where no such differences were

revealed for the use of a viewing guide during the tape's presentation.

As regards the long-term retention of subject content as a result of using the guides, Table 5 shows no significant difference.

TABLE 5

One-Way Analysis of Variance of Differences in Means of the Pre-Test and the Delayed Observation in Experiment One

Source	Sum of Squares	df	Mean Squares	F Ratio	F Prob.
Between Groups	.4209	2	.2105	2.834	.085
Within Groups	1.3368	18	.0743		
Total	1.7577	20			

However, application of the multiple range test, the modified least significant difference procedure, demonstrated the superior performance of the viewing guide worked on at pauses in the presentation. Table 6 shows the differences in the means for short- and long-term learning to be relatively consistent.

TABLE 6

Group Means for the Differences Between the Pre- and Post-Tests (DF1) and the Differences Between the Pre-Test and Delayed Observation (DO1) for Experiment One

Group	DF1	DO1
A (Control)	.1512	-.0229
B (During)	.3362	.2114
C (Pauses)	.4362	.3157

2. The Second Hypothesis

Table 7 demonstrates support for the first part of this hypothesis, that is, between a "principles-stressed" guide and a viewing guide no significant differences would be found for short-term learning.

TABLE 7

One-Way Analysis of Variance of Differences in the Means of Pre- and Post-Tests in Experiment Two

Source	Sum of Squares	df	Mean Squares	F Ratio	F Prob.
Between Groups	.1134	2	.0567	1.735	.201
Within Groups	.6860	21	.0327		
Total	.7994	23			

Furthermore, near-significant differences ($p < .07$) were found in an analysis of variance of long-term learning (Table 7)

TABLE 8

One-Way Analysis of Variance of Differences in Means of the Pre-Test and the Delayed Observation in Experiment Two

Source	Sum of Squares	df	Mean Squares	F Ratio	F Prob.
Between Groups	.1915	2	.0958	3.045	.073
Within Groups	.5661	18	.0315		
Total	.7577	20			

The modified least significant difference procedure indicated a trend toward significant results by favourably demonstrating the effectiveness of a "principles-stressed" viewing guide deployed at pauses in the presentation of a video training tape, ($p < .10$). Table 9, however, shows that the superior performance of the "principles-stressed" approach used at pauses in the tape was relative to the performance attributed to the viewing guide used during the tape's presentation and not the control group.

TABLE 9

Group Means for the Differences Between Pre- and Post-Tests (DF2) and the Differences Between the Pre-Test and Delayed Observation (DO2) for Experiment Two

Group	DF2	DO2
A (Pauses)	.4600	.4014
B (Control)	.3375	.3043
C (During)	.2988	.1686

3. The Third Hypothesis

While no significant differences between the various types of viewing guides or between the viewing guides and the tape-only approach were reported at the present level of significance of 0.05, the results did favour the expected outcomes or predictions with the exception of the third hypothesis. The third hypothesis predicted more learning from the use of supplementary viewing guides than a tape-only approach.

In the first experiment, the results demonstrated marginally-favourable results for the "principles-stressed" viewing guide as compared with the tape-only approach; the viewing guide used during a tape was found less effective than the tape-only approach for both short- and long-term learning.

The following table illustrates the group means and standard deviations for each of the two experiments.

TABLE 9a

Group Means¹ and Standard DeviationsExperiment 1

	Pre-test		Post-test		Delayed Observation	
	\bar{X}	s	\bar{Y}	s	\bar{Y}	s
A (Control)	46.8	16.9	62.0	14.6	45.7	20.7
B (During)	33.1	14.9	66.9	20.7	54.3	28.8
C (Pauses)	30.9	18.1	74.8	13.0	58.6	28.0

Experiment 2

	Pre-test		Post-test		Delayed Observation	
	\bar{X}	s	\bar{Y}	s	\bar{Y}	s
A (Pauses)	42.9	19.1	88.6	12.9	81.4	14.1
B (Control)	41.9	8.9	75.6	18.5	70.4	13.5
C (During)	47.8	20.4	77.8	19.6	60.3	18.1

¹ The group mean scores in this table are the averages of the raw scores converted into percentages for purposes of consistency throughout the data analysis. The number of questions for each observation - both before and after a post hoc item and test analysis - is found in TABLE 1.

CHAPTER 5

DISCUSSION

1. Conclusions

The use of an adjunct activity which incorporated some proven student participation techniques such as spaced review and practice, resulted in slightly higher mean scores, though not significantly more learning than a viewing guide incorporating the same participation techniques but worked on at the same time as a video training tape or a tape-only approach. That is, there were no significant differences found for any of the three types of viewing guides as compared with the usual tape-only approach.

The results for the viewing guide worked on during the tape were not significantly-different from the tape-only approach and were not even consistent for both experiments. Experiment one demonstrated slightly-higher mean scores for this type of guide compared with the tape-only approach but the second experiment demonstrated the reverse of these results. While the subject of the second tape was different from the first, both tapes were similarly produced and structured; the pacing and duration of each tape were the same; and the same narrator was employed for each tape. One important variable, distinguishing the viewing guides of the first and second experiments used during the tape's

presentations, was the number of items reviewed by each guide, thirty-eight items during the first tape and forty-five during the second. The effect of an increase in the number of items to be reviewed and overtly practiced may be viewed as having an effect similar to an increase in the pace of a video presentation used with an adjunct activity also involving overt participation. The common effect is simply that of having to look away from the video presentation more often. Kanner and Sulzer (1961) and McGuire (1961) found that overt participation interfered with learning from rapidly-paced video presentations. This interpretation is offered as a possible explanation for the discrepancy in the results of the first and second experiment examining the effectiveness of viewing guides worked on during a video tape presentation.

As regards the "principles-stressed" viewing guide worked on at pauses in the presentation of the tape, near significant support was found for its use as a supplementary aid in effecting long-term learning.

2. Summary

No significant differences were found for the use of the three types of viewing guides examined in this study. However, the results did demonstrate near significant support in learning from video training tapes for:

- (a) the use of a viewing guide deployed at pauses in a tape's presentation, for both short- and long-term learning,
- (b) the use of a "principles-stressed" viewing guide worked on at pauses in the tape's presentation, for long-term learning.

Conflicting results, however, were demonstrated for the use of a viewing guide used during a video training tape.

3. Recommendations for Future Research

A. Further Studies

While existing research is inconclusive as regards the effective use of adjunct activity deployed during a visual presentation, there have been some studies, notably Lavin (1971), which supported its use. A follow-up to the study herein then would be a determination of the optimal amount of time in terms of effective learning that could be devoted to an activity adjunct to a video presentation. This might be accomplished by rating the items in the visual presentation, say in order of their importance; and a determination of the optimal number of items to be reviewed in an adjunct guide in terms of both intentional (items contained in the guide) as well as incidental learning.

The study herein also examined the effectiveness of a "principles-stressed" viewing package worked on at pauses

in the presentation of a video training tape. That is, the independent variable in the second experiment combined two factors into a single approach for purposes of exploratory investigation. A future study might separate and examine these factors to determine their relative contributions to effective learning from instructional video tapes.

Finally, a major weakness of the study herein was the small sample size. A replication of this study which employed considerably larger sample groups would then provide more conclusive evidence for the adoption or rejection of the viewing guides developed for this study.

B. Developmental Research

Although the study herein did not yield statistically significant results, professional consultants¹ in the field of instructional production credited these viewing aids, particularly those viewing guides used at pauses in the presentation, as well-designed and effective supplements to instructional video tapes. Discussions with the subjects of each class used in this study confirmed support for this position.

¹ Prof. A. Romiszowski, Visiting Instructor of the Development and Evaluation of Educational Materials, Concordia University

Mr. B. Queenan, Director, Audio Visual Department, Concordia University

Basically, the main advantage cited for both of the guides deployed at pauses in the tape's presentation was the additional time allowed between sections of the tape for retrieval and organization of the information just presented. The guides' function of directing the viewers' attention to specific points of information in the tape was also recognized as being helpful. The guide which stressed certain principles underlying the examples presented in the tape and worked on at pauses in the presentation was mainly credited as an explanatory aid.

The viewing guide deployed during the presentation of the video tape met with more criticism than credit. The following suggestions for its improvement might also be the focus for future research:

- a) the use of still frames instead of printed cues,
- b) the production of a visual presentation designed to be viewed in conjunction with a viewing aid,
- c) the use of audio rather than visual cues,
- d) a reduced number of items to be reviewed.

APPENDIX A INSTRUCTIONS FOR THE TEACHER

To the Instructor

Re.: - Implementation of Experiments Using Viewing Guides to Two Training Tapes Produced by 3-M.

1. The materials for this experiment are divided into three packages marked A, B & C. These packages should be distributed to your students equally and randomly - perhaps by laying them accordingly on students' desks before they arrive to class.
2. Each of these packages contain a pre-test as well as a post-test for each of the two tapes used in these experiments (ie. four, short, objective tests). Also, each package contains its own set of instructions to its user. All that is missing from these packages are cues to the students, such as when to start or finish a test, or the switching on or off of a monitor. These cues are outlined in a list form, labelled, "Instructions to Students."
3. The following schemata shows what each student will be doing at any given time. Basically though, for each of the two tapes (also, two experiments), the procedure is for the student to:
 - a) read instructions
 - b) complete pre-test
 - c) view tape; with the use of a guide if one of the two experimental groups or without if a control group
 - d) complete post-test

	A	B	C
Exp. #1	Control Grp.	Exp. Grp.	Exp. Grp.
Tape #1		Viewing Guide	Viewing Guide
"Lighting Techniques"		<u>During Tape</u>	<u>At Pauses in Tape</u>
Exp. #2	Exp. Grp.	Control Grp.	Exp. Grp.
Tape #2	Principles-		Viewing Guide
"Camera Techniques"	Stressed		<u>During Tape</u>
	Viewing Guide		
	<u>At Pauses</u>		

NOTE: In the first experiment, groups A & B will view the same version of tape #1 which is without pauses (ie. the same monitor); while group C will watch the version of tape #1 with pauses from a different monitor.

Before the second experiment, the instructor is asked to ask those students in group B to join group C.

Instructions to Students

"You will be viewing two tapes; the first one deals with lighting techniques and the second with camera techniques for video tape production.

Each of you has a package of materials marked A, B or C. They are to be used in conjunction with the viewing of the tapes. The contents of these packages and the instructions for their use are outlined on the first page. I will give you cues to start and finish the various sections."

Cues for Experiment #1 :

1. Ask students to print their name & read the instructions on the first page (and then wait for next cue).
2. Start pre-test. Six minutes should be enough.
3. Start tape.
4. (After viewing the tape) start post-test. Again six minutes should be enough.

Cues for Experiment #2 : (Before starting this experiment, ask those students with package B to join the group with package C.)

1. Ask students to read the instructions to Part 11.
2. Start pre-test. 7 or 8 minutes should be enough.
3. Start tape.
4. (After viewing the tape,) start post-test. Allow 7 or 8 minutes for this test as well.

Final Instruction: "Make sure your name is on the front page before handing in these packages."

APPENDIX B THE LEARNING PACKAGES

B

NAME _____

This package contains: four short tests and one viewing guide. It is divided into Parts 1 and 11.

INSTRUCTIONS TO PART 1

1. You will be viewing a 17 minute video tape dealing with lighting techniques for video tape production.
2. Before viewing, you will be asked to complete a short objective test.
3. Following the pre-test in this package is a viewing guide which you will be asked to fill out during the actual viewing of the tape. At various points in the tape there will appear in the upper right-hand corner of the T.V. monitor, the cue word, "GUIDE."

For each such cue from the monitor, 38 in all, you are simply to check (✓) the appropriate key word(s) or phrase mentioned in the tape immediately prior to the signal, "GUIDE." For example:

- (1) Video Tape Narration: "First, you must have enough light so that the camera can record a good strong signal on the tape."
- (2) The cue word, "GUIDE" appears in the upper right-hand corner of the T.V. monitor.
- (3) You then check the appropriate key word(s) or phrase:
 1. spill light....() enough light....(✓)
- (4) Return to viewing the monitor.

4. At the end of the viewing, you will be asked to complete the second objective test.

NOTE 1: As you sometimes have as few as three seconds in which to complete this operation without missing too much information from the tape, it may be helpful to keep a finger on the appropriate spot in the guide so as not to lose time looking for your place.

NOTE 2: Marks on these and subsequent tests will not count for a grade but will help in determining the effectiveness of different ways of learning from video tapes.

VIEWING GUIDE:"Lighting Techniques for Video Tape Production"Section #1 - Means of Achieving Effective Lighting

1. spill light....() enough light....()
2. ambient light....() even light....()
3. make things stand out....() dim brightness control....()
4. over expose....() accentuate texture....()
5. accentuate shape & depth....() increase light level....()
6. match, enhance or create mood....()
three-point lighting....()

Section #2 - How to Get Enough Light

1. open lens wide....() contrast range....()
2. footcandles....() smaller area....()
3. light units....() focus spotlights....()

Section #3 - How to Get Even Lighting

1. lens flare....() balance lights....()
2. avoid bright objects....() overload....()
3. reflectiveness....() patching....()

Section #4 - How to Make Things Stand Out

1. vary light levels,
light background &
light foreground.....() change the scene....()

Section #5 - How to Accentuate Texture

1. skim the surface....() montage....()
2. scoop light....() increase texture....()

Section #6 - How to Accentuate Shape and Depth

1. side,
back &
eliminate shadows.....() change lenses....()
2. safety bond....() broad diffuser....()

Section #7 - How to Match, Enhance or Create Mood

1. upstage....() dark shadows....()
2. simulate light source....() slash light....()
3. imply surroundings....() block shots....()
4. light from within the scene....() downstage....()
5. spot lighting....() flat lighting....()
6. strong hair light,
key light &
kicker.....() single spot light....()

Section #10 - Typical Lighting Problems

1. head-on....() from sides....()
2. puddles of light....() master dimmer....()
3. key light & rim light....() incident light....()
4. lighting director....() boom paralel to key light....()
5. gain....() shield the lens....()

- End of Guide -

NAME _____



This package contains four short tests and two viewing guides. It is divided into Parts I and II.

INSTRUCTIONS TO PART I

1. You will be viewing a 17 minute video tape dealing with lighting techniques for video tape production.
2. Before viewing, you will be asked to complete a short objective test.
3. At the end of each of the tape's ten (10) sections, you will be asked to turn to your viewing guide. This guide contains questions on preceeding sections in the tape.
4. If you should complete a section in the viewing guide before the tape restarts, you may review parts of the guide, check your answers with those on the reverse side of the last page of that section, or simply wait for the tape to restart.
5. At the end of the viewing, you will be asked to complete a second, short objective test. You will be asked to do this without turning back to the guide.

NOTE:- Marks on these and subsequent tests will not count for a grade but will help in determining the effectiveness of different ways of learning from video tapes.

VIEWING GUIDE:"Lighting Techniques for Video Tape Production"

Section #1:- Check (✓) six of the items below listed in the tape as important factors in achieving effective lighting.

- () 1. Match, enhance or create appropriate mood
- () 2. Light only from the front
- () 3. Create shadows wherever possible
- () 4. Make things stand out
- () 5. Light all areas with the same level of brightness
- () 6. Texture must be accentuated
- () 7. Overlap areas to be lit with spill light
- () 8. Lighting must be even across the picture
- () 9. Use spotlights only
- () 10. Make sure there is enough light
- () 11. Use as much light as possible ("The more, the better")
- () 12. Accentuate shape and depth of objects

Section #2:- Check (✓) three of the items below listed in the tape as means of achieving enough light.

- () 1. Make sure house lights remain on
- () 2. Contrast range
- () 3. Open camera lens wide
- () 4. Light a smaller (specific) area
- () 5. Meter the number of footcandles
- () 6. Focus spotlights where they are needed

Section #3:- Check three of the items below listed in the tape as means of achieving even light.

- ☐ 1. Effect uniform focal length for each camera lens
- ☐ 2. Overload circuits
- ☐ 3. Balance lights
- ☐ 4. Keep light off bright objects
- ☐ 5. Eliminate spurious streaks by stopping down camera lenses
- ☐ 6. Effect uniform reflectiveness

Section #4:- Check (✓) three of the items below listed in the tape as means of making things stand out.

- ☐ 1. Darken off-stage area
- ☐ 2. Change the foreground shade
- ☐ 3. Light from behind cameras
- ☐ 4. Effect uniform light levels
- ☐ 5. Change the background shade
- ☐ 6. Vary light levels

Section #5:- Check (✓) two of the items below listed in the tape as means of accentuating texture.

- ☐ 1. Use plenty of fill light
- ☐ 2. Use a broad diffuser
- ☐ 3. Use a single light to skim the surface
- ☐ 4. Increase texture of the object

Section #6:- Check (✓) four of the items below listed in the tape as means of accentuating shape and depth.

- () 1. Light background evenly
- () 2. Light from the side
- () 3. Light from a low angle
- () 4. Use a broad diffuser
- () 5. Light from the back
- () 6. Use plenty of spill light
- () 7. Eliminate black shadows
- () 8. Afix safety bond

Section #7:- Check (✓) six of the items below listed in the tape as means to match, enhance or create mood.

- () 1. Use light sources within the scene
- () 2. Use flat lighting to create patterns or shadows
- () 3. Use lens flare for contrast
- () 4. For "glamour" lighting, use a strong hair light, key light, and a kicker from the back
- () 5. Simulate light source
- () 6. Make a joke at the director's expense
- () 7. Block shots
- () 8. Use flat lighting for normal, everyday scenes
- () 9. Use dark shadows for mystery or drama
- () 10. Adjust pedestal for reverse-angle shots
- () 11. Effect critical lighting angle for moving subject
- () 12. Imply surroundings.

Section #8:- Check (✓) six of the items below listed in the tape as common and useful tools of the trade.

- () 1. Pickup tubes
- () 2. Barn doors
- () 3. Tilt wedges
- () 4. Lens spots
- () 5. Filter wheels
- () 6. Spot light controls
- () 7. Hues
- () 8. Screens or scrims
- () 9. Tally lights
- () 10. Telescopes
- () 11. Masking, reflecting & pattern-producing devices
- () 12. Light meters
- () 13. Reverse-angle adapters
- () 14. Diffusion sheets

Section #9:- Check (✓) two of the items below listed in the tape as possible responses to various types of lighting situations.

- () 1. Reflectors to fill shadows
- () 2. Adjust gain control to eliminate shadows
- () 3. Bounce light to provide separation
- () 4. Effects highlights for emphasis

Section #9 cont'd.....

Section #9 (cont'd):- Check (✓) four of the types of light below, listed in the tape as components of "portrait lighting," a common, studio-lighting technique.

(✓) Background
light

Rim light ()

() Spill
light

X

Profile ()
light

() Key
light

Fill ()
light

Head ()
light

Section #10:- Check () five of the items below listed in the tape as solutions to some typical lighting problems.

- () 1. Glare - increase rim light
- () 2. Moving subject - use puddles of light
- () 3. Spurious shadows - make use of gobos
- () 4. Boom shadow - place the boom parallel to key light
- () 5. Camera shadows - raise the offending lamp
- () 6. People with glasses - light from the sides
- () 7. Two people - let each person's key light be the other's rim light
- () 8. Boom shadow - increase overall lighting
- () 9. Glare - shield the lens

- End of Guide -

INSTRUCTIONS TO PART 11

1. You will be viewing a second, 17 minute video tape; this time, the subject dealt with will be camera techniques for video tape production.
2. Before viewing, you will be asked to complete a short objective test.
3. Following the pre-test in this package is another viewing guide which you will be asked to fill out during the actual viewing of the tape. At various points in the tape there will appear in the upper right-hand corner of the T.V. monitor, the cue word, "GUIDE."

For each such cue from the monitor, 45 in all, you are simply to check (✓) the appropriate key word(s) or phrase mentioned in the tape immediately prior to the signal, "GUIDE." For example:

- (1) Video Tape Narration: "First, the close-up: universally useful, it lets you compensate for the lack of sharpness inherent in the television system."
 - (2) The cue word, "GUIDE" appears in the upper right-hand corner of the T.V. monitor.
 - (3) You then check the appropriate key word(s) or phrase:
 1. sharpness....(✓) greyiness....()
 - (4) Return to viewing the monitor.
4. At the end of the viewing, you will be asked to complete a final, short objective test. You will be asked to do this without turning back to the guide.

NOTE:- As you sometimes have as few as three seconds in which to complete the above operation without missing too much information from the tape, it may be helpful to keep a finger on the appropriate spot in the guide so as not to lose time looking for your place.

VIEWING GUIDE:

"Camera Techniques for Video Tape Production"

Section #1 - The Close-Up

1. sharpness....() greyness....()
2. varies shot pace....() gains attention....()
3. waste its power....() be effective....()
4. a painting....() a mirror....()
5. close-up adapter....() diodes....()
6. move the whole camera....() raise platform....()
7. works on any lens....() reverses polarity....()
8. illustrations to the whole class....()
pre-taped lectures....()
9. teleciné....() microscope....()
10. split-field adapter....() rounded....()

Section #2 - Camera Movement

1. Panning is a horizontal movement.
true....() false....()
2. Tilting is a vertical movement.
true....() false....()

3. Trucking is a sideways movement.
true....() false....()
4. Camera dolly can be anything with wheels.
true....() false....()
5. Dolly-in moves the camera away from the subject.
true....() false....()
Dolly-out moves the camera away from the subject.
true....() false....()
6. A wide-angle lens helps compensate for shaky camera movement.
true....() false....()

Section #3 - Lens Characteristics

1. tripod....() zoom lens....()
2. longest focal length....() longest signal....()
3. shortest focal length....() shortest roll....()
4. 100 to 1 ratio....() 10 to 1 ratio....()
5. tilt camera....() zoom, then focus....()
6. Long focal length has a shallow depth of field.
true....() false....()
7. Short focal length has a wide breadth of vision.
true....() false....()
8. A small lens aperture results in a large depth of field.
true....() false....()
9. A large lens aperture results in a shallow depth of field.
true....() false....()

Section #4 - Composition

1. arrangement of subjects & T.V. frame....()
dry run....()
2. pivot or prop....() zoom back or pan over....()
3. tightly-framed shot....() headroom....()
4. tensions within the frame....() resolution....()
5. medium shot....() over-the-shoulder shot....()
6. imbalance....() negative space....()

Section #5 - Camera Angle

1. shoulder level....() full length....()
2. high-angle shot....() waist level....()
3. wrist shot....() low angle shot....()
4. "keystonning"....() 3-dimensional quality....()

TURN PAGE for next section.....

Section #6 - Optical & Mechanical Effects

1. focused forward....() fish-eye lenses....()
2. multi-face prisms....() normal lenses....()
3. star filters....() crabbing....()
4. cardboard masks....() cue cards....()
5. switcher....() diffusers....()
6. picture monitor....() tilted camera....()
7. streaking....() see-through mirror....()

Section #7 - Electronic Effects

1. dissolves,
wipes,
split screens,
superimpositions.....() long shots....()
2. trucking & panning....() matting & keying....()
3. defocusing....() still frames....()

- End of Guide -

INSTRUCTIONS TO PART 11

1. You will be viewing a second, 17 minute video tape; this time, the subject dealt with will be camera techniques for video tape production.
2. Before viewing, you will be asked to complete a short objective test.
3. At the end of each of the tape's seven (7) sections, you will be asked to turn to your viewing guide. This guide contains background information and some questions on preceeding sections in the tape.
4. If you should complete a section in the viewing guide before the tape restarts, you may review parts of the guide, check your answers with those on the reverse side of the last page of that section, or simply wait for the tape to restart.
5. At the end of the viewing, you will be asked to complete a final, short objective test. You will be asked to do this without turning back to the guide.

VIEWING GUIDE:"Camera Techniques for Video Tape Production"Section #1 - The Close-Up

At the base of the T.V. picture tube is an electron gun which produces a beam and traces a scanning area (or raster) of fine horizontal lines. In North America, there are 525 of these lines per frame with 30 picture frames per second being produced. These are partial indicators of how rapidly the system can change from one tonal level to another during the scanning process.

Yet, T.V. picture resolution, the subjective aspect of which is referred to as picture sharpness, is at least 5 times less than the resolving power of film and many more times less than that of the human eye.

1. The close-up then compensates for the lack of _____ inherent in the television system.

sharpness....() greyness....()

2. A conventional use for the close-up is to _____ .

detract interest....() gain attention....()

The viewer should be induced to feel that he wants to look that close and not feel that he is being robbed of a wider view. Medium or long shots will help re-orient the viewer and aid in inducing him to want a closer look again.

3. Continued use of the close-up, however, will _____ .

waste its power....() re-orient the viewer....()

4. Sometimes camera-angle problems or a desire to have a split-screen effect can be solved by using a _____ .

mirror....() painting....()

Various situations make an even closer shot desirable, particularly in the area of instructional television.

5. Use of _____ allow closer camera shots.

diodes....() close-up adapters....()

6. The focussing procedure with close-up adapters is to _____ until you are approximately in focus, then fine focus.
move the whole camera....() raise platform....()
7. One attraction of these close-up adapters is that they _____.
reverse polarity....() work on any lens....()
8. A good example of these adapters' usefulness is the showing of an _____.
already-taped lecture....()
illustration to the whole class....()
9. The magnification power of the close-up is further exaggerated by mounting the camera on a _____.
teleciné....() microscope....()
10. A _____ adapter allows you to focus on close and distant objects at the same time.
split-field....() rounded....()

- End of Section 1 -

Section #2 - Camera Movement

There are four commonly-used camera movements:

panning
tilting
trucking
dollying.

Combinations of these techniques are usually employed in diagonal movement.

Camera movement becomes viewer behaviour - by proxy - towards the subject. That is, a good part of viewer interpretation of each scene is affected by various associations with each camera movement and the manner in which it is handled. The slow pan, for instance, is restful and anticipatory; whereas, the whip pan provides an exciting transition between two spaced points. Each camera movement then should be motivated by a more compelling reason than simply a change of pace.

1. Panning is a horizontal movement.

true....() false....()

2. Tilting is a vertical movement.

true....() false....()

A general convention applying to all camera movement is to start and finish with a static shot. A further rule states that all camera movement should be done as unobtrusively as possible so not to detract the viewer's concentration from the programme and possibly make him aware of poorly-executed camera movement.

3. Trucking is a sideways movement.

true....() false....()

4. A camera dolly can be anything with wheels.

true....() false....()

5. Dolly-in moves the camera toward the subject.

true....() false....()

6. Dolly-out moves the camera away from the subject.

true....() false....()

7. A wide-angle lens helps compensate for shaky camera movements.

true....() false....()

- End of Section 2 -

Section #3 - Lens Characteristics

Each lens angle has its operational peculiarities;- the zoom lens combines a good many of these in a single lens. Zoomed all the way in, the zoom lens functions as a narrow-angle lens; zoomed all the way out, it functions as a wide-angle lens.

1. The _____ allows a smooth, continuous transition from long shots to the all-important close-up.

telephoto lens....() zoom lens....()

2. Zoomed all the way in, the zoom lens moves to its _____.

longest focal length....() shortest focal length....()

3. Zoomed all the way out, the zoom lens goes to its

longest focal length... () shortest focal length... ()

- Despite the many advantages of the zoom lens, it has been criticized for providing "unnatural" perspectives. For example, when dollying-in (moving the whole camera toward a scene) with a wide-angle lens, near subjects become large and distant subjects are small;- whereas, throughout the range of the zoom lens, near and distant objects maintain the same ratio.

4. Fully zoomed out, the zoom lens sees _____ times as wide an area as it does fully zoomed in.

100.... () 50.... () 10.... ()

5. The correct way to focus a zoom lens is to _____ then focus.

tilt camera.... () zoom.... ()

Depth of field is defined as the difference between the nearest and furthest distances a subject can be placed from a lens in order to remain acceptably in focus.

There are three fundamental factors affecting depth of field: subject distance, focal length, and lens aperture:

A. Other factors remaining constant, as the distance of the subject from the camera is increased, so too will the depth of field increase.

B. As the focal length is decreased (lens angle widened), the depth of field increases.

C. As the lens aperture is reduced, depth of field increases progressively.

Theoretically then, a large depth of field may be achieved by a long subject distance from the camera, a short focal length, and a small lens aperture.

6. A long focal length has a shallow depth of field.

true.... () false.... ()

7. A short focal length has a wide breadth of vision.

true.... () false.... ()

8. The smaller the lens aperture, the larger the depth of field.

true....() false....()

9. The larger the lens aperture, the shallower the depth of field.

true....() false....()

- End of Section 3 -

Section #4 - Composition

Composition is the art of arranging the elements of a scene (mass, line, tone & depth) to emphasize the centre of interest. This, however, may not necessarily be the centre of the screen, since strangely enough this is its weakest concentrational area.

Composition fulfills at least two functions:

- A. It directs the viewer's attention to a selected subject or area; and

- B. It helps influence the viewer's impression.

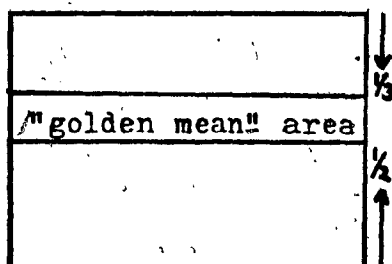
1. Composition then involves the _____ of subjects and the T.V. frame.

attitudes....() arrangement....()

The temptation to follow all of a subject's movements is a natural reaction of all camera persons. Usually, as long as the subject is within frame, the camera can remain still. Otherwise camera movement itself may take hold of the viewer's attention instead of the programme.

2. However, should the subject in fact move out of frame, two techniques available to the camera person are to _____.

pivot or prop....() zoom back or pan over....()

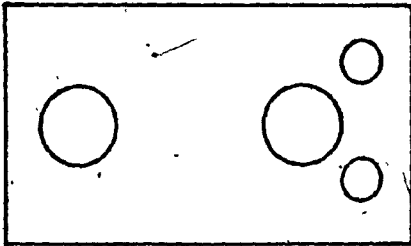


The Greek "golden mean" band can be located on a camera monitor half way up the T.V. frame (its lower limit) and a-third of the way down from the top (its upper limit). Focussing the subject's eyes in this band ensures the correct headroom - the space between the top of the frame and the head - throughout the zoom range.

This rule also standardizes shots between one camera person and another.

3. The positioning of a subject so that it fills a large area within the borders of the T.V. picture is known as _____.

headroom....() a tightly-framed shot....()



Illusory attraction, made possible by the mind's pattern-seeking habits, can be a technique used to create a variety of effects for the viewer. For example, in the diagram on the left, the isolated subject appears to be attracted to the more stable and supported group.

4. Two people at either side of the T.V. picture is an example of _____.

tensions within a frame....() picture resolution....()

5. A technique to change that situation, if desired is to take _____.

a medium shot....() an over-the-shoulder shot

6. Sometimes lopsided composition or _____ is used to create a state of viewer expectancy.

imbalance....() negative space....()

- End of Section 4 -

Section #5 - Camera Angle

Camera angle is another means of affecting viewer perception and impression. Haphazard use of camera angles, however, tends to draw viewer attention away from the subject to the "abnormal" position of the camera.

1. Usually, subjects are shot at _____.

full length....() shoulder level....()

Unusual camera angles are quite acceptable though, as long as it can be shown that they are motivated. Looking down from an upper storey or looking up from a seated position are examples of two viewpoints that are entirely justifiable. Extreme angles are also acceptable provided they appear for a subjective effect. For instance, an eavesdropper's viewpoint from the floor above makes an overhead shot perfectly reasonable.

2. A _____ shot looking down on a subject has the effect of making him appear weak or small.

waist level....() high angle....()

3. A _____ shot will make him appear strong and domineering.

low angle....() wrist....()

4. Shooting from an angle also gives the subject a _____ quality.

obscure....() 3-dimensional...()

- End of Section 5 -

Section #6 - Optical & Mechanical Effects

Match the various attachments & props with their effects.

- | | |
|---------------------------|--------------------------------------|
| () 1. tilted camera | a. reverses polarity |
| () 2. cardboard mask | b. enhances foreground subjects |
| () 3. fish-eye lens | c. frames the subject |
| () 4. see-through mirror | d. softens lens focus |
| () 5. multiface prism | e. implies excitement or confusion |
| () 6. star filter | f. distorts the subject |
| () 7. diffuser | g. superimposes two subjects |
| | h. makes distant subjects more clear |
| | i. adds sparkle to highlights |
| | j. multiplies an image |

- End of Section 6 -

Section #7 - Electronic Effects

The various ways in which the camera shots are edited form the last group of techniques. Aside from cutting or switching from one camera to another, there are several other ways of making camera transitions:

A. The dissolve or mix fades the image of one camera out and the image of another camera in. If this is done quickly, the viewer is given the impression of concurrent action; if a dissolve is done slowly, a spatial or temporal change is suggested.

B. The wipe, in clearing one picture with another,

heightens the two-dimensional quality of the picture. It is therefore used sparingly, perhaps for an uncovering or revelatory purpose.

C. The split screen has traditionally been used mainly in the interaction of people or events in separate places.

D. One of the many applications of the superimposition is the rolling of credits over a picture in the scene.

Match the following techniques with their effects.

- | | |
|------------------------|---------------------------------------|
| () 1. wipe | a. accentuates shape and depth |
| () 2. dissolve | b. eg.- telephone conversation |
| () 3. split screen | c. clears away one image with another |
| () 4. superimposition | d. accentuates texture |
| | e. fades one image into another |
| | f. makes objects stand out |
| | g. puts one image onto the other |
5. _____ replaces part of the picture with black or white or a colour; _____ inserts parts of one scene into another.
- switching & editing....() matting & keying....()
6. Time control is affected by means of _____.
- still frames....() focussing forward....()

- End of Guide -

TEST: "Lighting for Video Tape Production"

INSTRUCTIONS:- Unless otherwise indicated, check(✓) only one choice for each of the following items.

1. Effective lighting often involves _____.
 spurious highlights....() accentuating texture....(✓)
 spill light....() all of the above....()
2. A means of achieving enough light is to _____.
 use a fast lens....() open camera lens wide....()
 bring lights closer to subject....()
 all of the above....()
3. The _____ light usually has controls right on it that allow flooding or concentrating of light.
 scoop....() spot....() profile....()
 all of the above....()
4. A light _____ is useful in gauging light evenness.
 tracer....() level....() meter....()
 all of the above....()
5. An essential requisite for even lighting is to _____.
 effect uniform reflectiveness....()
 aim extra light at dark objects....()
 fill shadows....() all of the above....()
6. To fill shadows, _____ can be used.
 barn doors....() reflectors....() screens....()
 all of the above....()
7. For normal everyday scenes, use _____ lighting.
 spot....() ambient....() flat....()
 all of the above....(✓)
8. To avoid a shadow from the boom microphone, place the boom parallel to the _____ light.
 key....() rim....() back....() all of the above....()

TEST: "Lighting for Video Tape Production"

INSTRUCTIONS:- Unless otherwise indicated; check(✓) only one choice for each of the following 18 items.

1. An important factor in achieving effective lighting is to _____.
 position key light 90° degrees off lens axis....()
 match, enhance or create appropriate mood.....()
 light only from the front.....()
 all of the above.....()
2. A means of achieving enough light is to _____.
 use a fast lens....() open camera lens wide....()
 bring lights closer to subject.....()
 all of the above.....()
3. For "glamour" lighting use ____, ____ & _____. (Check 3)
 strong hair light....() ambient light.....()
 spill light....() a kicker from the back.....()
 key light....()
4. A light _____ is useful in gauging light evenness.
 tracer....() meter....() level....()
 all of the above....()
5. A _____ can cut the light down, if desired.
 gobo....() scrim....() flat....()
 all of the above....()
6. To fill shadows _____ can be used.
 barn doors....() reflectors....() screens....()
 all of the above....()
7. For mystery or drama effect _____
 fade down house lights....() use dark shadows....()
 use diffusion sheets....() all of the above....()

TEST: "Camera Techniques for Video Tape Production"

INSTRUCTIONS:- Unless otherwise indicated, check (✓) only one choice for each of the following items.

1. Use of _____ adapters will allow closer shots.
 diffuser....() select-view....()
 close-up....() all of the above....()
2. A means of time control is affected by means of _____.
 still frames....() following focus....()
 focusing forward....() all of the above....()
3. Panning is a vertical movement.
 true....() false....()
4. The _____ allows a smooth, continuous transition from long shots to the all-important close-up.
 telephoto lens....() wide-angle lens....()
 zoom lens....() all of the above....()
5. A common technique put into effect when two subjects begin to move out of either side of the frame is known as _____.
 an over-the-shoulder shot....() a two shot....()
 a reverse-angle shot....() all of the above....()
6. A dolly-out moves the camera toward the subject.
 true....() false....()
7. Zoomed all the way in, the zoom lens moves to its _____.
 longest signal....() longest focal length....()
 shortest focal length....() all of the above....()
8. A conventional use for the close-up is to _____.
 vary shot pace....() gain attention....()
 contrast range....() all of the above....()
9. Fully zoomed out, the zoom lens sees _____ times as wide an area as it does fully zoomed in.
 10....() 15....() 20....() all of the above....()

TEST: "Camera Techniques for Video Tape Production"

INSTRUCTIONS:- Unless otherwise indicated; check (✓) only one choice for each of the following 24 items.

1. The correct way to focus a zoom lens is to _____, then focus.
 tilt camera....() raise pedestal....()
 zoom....() all of the above....()
2. A means of time control is affected by means of _____.
 still frames....() following focus....()
 focusing forward....(✓) all of the above....()
3. Two people at either side of the T.V. picture is an example of _____.
 informal framing....() tensions within a frame....()
 a tightly-framed shot....(✓) all of the above....()
4. The _____ allows a smooth, continuous transition from long shots to the all-important close-up.
 telephoto lens....() wide-angle lens....()
 zoom lens....() all of the above....()
5. A short focal length has a wide breadth of vision.
 true....() false....()
6. A dolly-out moves the camera toward the subject.
 true....(✓) false....()
7. Sometimes lopsided composition or _____ is used to create a state of viewer expectancy.
 limbo....() negative space....() imbalance....()
 all of the above....()
8. A conventional use for the close-up is to _____.
 vary shot pace....() gain attention....(✓)
 contrast range....() all of the above....()
9. Tilting is a horizontal movement.
 true....() false....()

APPENDIX C EDITED VIDEO SCRIPTS

APPENDIX

Audio Script for Tape No. 1:- "The Necessary Art"

(Lighting for Video Tape Production)

DO YOU HAVE TO WEAR THOSE GLASSES? I CAN'T READ THE Q-CARDS. DO WE REALLY NEED ALL THOSE LIGHTS? THIS JUST ISN'T GOING TO WORK. WHAT'S THAT LITTLE THING? HIS EYES, I CAN'T SEE HIS EYES. TIP IT DOWN A LITTLE MORE, TIP IT DOWN.

There's lots to do when you're making a video tape and nothing is more necessary than lighting. Without light you get no picture at all. But your skill at lighting can add value to the production, can enhance the mood, make the picture more clear, more real. It's up to you, your energy, your effort, your imagination, your skill. Light is necessary but use it skillfully and you add an artistic dimension to your video tape production that could be the deciding factor in your show's success.

Section No. 1

On every lighting job your task is simple. First, you must have enough light so the camera can record a good strong signal on the tape. (GUIDE) Second, the lighting must be somewhat even across the picture so that everything will record well and fall within the range of the TV

*Produced for the Minnesota, Mining & Manufacturing Co.(1974)

cameras. (GUIDE) Third, foreground and background objects must be lit to be separate and distinguishable. (GUIDE) Fourth, objects with texture must have this texture accentuated so it won't be lost in reproduction. (GUIDE) Fifth, all three dimensional objects must have their shapes accentuated to give a feeling of realness and depth to the two dimensional TV picture. (GUIDE) Sixth, the whole scene must be lit in a fashion compatible with the location represented and the mood to be evoked, a school room, an office, a living room, should look natural. (GUIDE) That's what you're trying to do with lighting.

Now here's what you need to know to satisfy these requirements, things to try, ways to work. You'll notice we use people in most of our examples. The reason is that the average viewer is most aware of lighting as it is used on people, particularly sensitive to lighting changes on people's faces.

Section No. 2

The most basic requirement is enough light. To get enough light you can do one of several of the following things:

- shoot outdoors or near a window
- use lights
- open your camera lens wide (GUIDE)
- use a faster lens
- shoot near existing lights

- light a smaller area (GUIDE)
- use more lights
- bring lights closer to the subject
- focus spot lights where they're needed (GUIDE)

Section No. 3

Here's how to get even lighting within the range of the TV camera:

- balance lights from both sides (GUIDE)
- fill shadows
- keep light off bright objects (GUIDE)
- aim extra lights at dark objects
- change sets, clothes, people to even out light reflectiveness (GUIDE)

Section No. 4

Here's how to light to separate the subject from the background:

- use a dim light to control focus
- make one a little brighter
- change the background shade
- change the foreground shade
- light one with a slightly different colour (GUIDE)

Section No. 5

Here are some ways to accentuate texture:

- use a single light which just skims the surface (GUIDE)
- move the camera closer
- increase the texture of the object (GUIDE)

Section No. 6

Here are some tricks for accentuating the shape of objects and for increasing the feeling of depth and realness of the picture:

- light from the side
- light from the back
- eliminate black shadows (GUIDE)
- overlap objects
- use different coloured lights
- use a broad diffuser or light source that gives gradual shading (GUIDE)
- use a wide angle lens for perspective

Section No. 7

Now you come to the fun part. Here are just a few suggestions on how to match, enhance or create mood by use of lighting techniques:

- use a lot of dark shadows in your picture for mystery or drama (GUIDE)
- eliminate most or all the shadows for a happy, glamorous fashion look
- simulate or actually use a natural light source, such as a flickering fire or lightning, or light ruffling off water, or car headlights, or a swinging light bulb (GUIDE)
- create shadows that imply surroundings such as a venetian blind, a circulating fan, some mysterious danger or just an interesting pattern (GUIDE)
- light with colours to add glamour to common place objects
- use light sources that are right in the scene, you might have to change bulbs to make a natural overall brightness (GUIDE)
- use unnatural lighting for mystery or tension or danger
- use sparkles or patterns of lights in the picture for glamorous or stage lighting
- for normal everyday scenes use simple, even, flat lighting (GUIDE)
- for glamour lighting on people, use a strong hair light, a key light with strong shadows and maybe a kicker from the back for greater depth (GUIDE)

As with any art, the techniques have endless applications and combinations of techniques create even further variations. To function effectively you have to be familiar with the various kinds of lighting equipment that are available, each with its' own special capabilities.

Section No. 8

Here are some of the most common and useful tools of the trade and how they are used:

- the portable lights, they come in a variety of sizes and types
- quartz-halogen bulbs, allow great brightness without bulb blackening
- spot light controls, allow you to concentrate the light where you want it (GUIDE)
- barn doors, keep the light away from where you don't want it (GUIDE)
- extension stands, get your source up high so that lighting will seem more natural
- screens or scrims, cut the light down if desired (GUIDE)
- snoots, direct the light to a small spot (GUIDE)
- heat resistant filters can colour the lights and wheels help you move the lights around
- boom arms are useful in placing back lights. These lights can be used directly or can be bounced off

ceilings or reflective white cards or umbrellas for a softer more natural lighting effect.

There are a few practical hazards with this equipment with which you should be familiar. They get hot and can scorch things that get too close, or even start a fire. Watch for smoke and respond quickly to any strange smell. Is there an electrical-type fire extinguisher near by? The lights are tippy when extended. The bulbs are expensive and burn out if jarred while hot. Bulbs can pop with age so use a protective screen for close work with people. And of course, don't forget you are dealing with electricity.

Other useful tools are devices for masking off the light, making patterns and reflecting it where you want it. (GUIDE)

For natural type lighting a large source is useful, for occasional jobs a broad light can be improvised using diffusion sheets in front of regular lights. (GUIDE)

Sometimes a portable dimmer will allow you to create effects or balance the lights, and of course, any studio light or theatre light can be used, but they're heavy. They often have special plugs and sometimes require 220 volts.

Several other important tools: don't forget extension cables so you can run the lights on different circuits. Your own circuit breakers are a good idea and extra fuses if you're working in an older house. On every job you should know both the power requirements of each individual light and the capacity of each circuit. And a light meter

tele-photosettings. A long focal length pulls the background unnaturally close to the subject, it flattens out perspective and has a very shallow depth of field or focus range. (GUIDE) Also a long focal length compresses the distance between two subjects. The magnification power of the long focal length is most helpful, if the close approach to the subject is impossible. Shooting wild life or unknowing people are good uses for the long focal length, where a close approach might scare either away. Sometimes instead of being too far away, you find yourself too close to take in all you want to shoot. Physical limitations may prevent your backing off enough to get everything in. You need a greater breath of vision and the short focal length or wide angle lens can provide it. (GUIDE) In between wide angle and tele-photo there is the normal or standard focal length which produces a true perspective of the surroundings. In addition to image size and perspective control, the different focal lengths have artistic and dramatic uses, almost everything in front of a wide angle lens stays in focus. A wide angle lens can be used to make small foreground objects, become large and prominent. The tele-photosettings have a shallow focus range which can make the subject stand out from the background or make foreground objects become out of focus abstract patterns. Tele-photos are also used for pleasing portrait-type pictures. Another control which has practical and artistic applications is the aperture or f stop. This is normally

used only to control the amount of light coming into the camera. (GUIDE) However, when using the smaller openings, your depth of field will increase, meaning that more subject area in front of the lens remains in focus. You must then add more light on the subject as a compensation for the small lens opening. To get shallow depth of field, dim the lights on the subject and use a wide open lens. (GUIDE) All of these controlled techniques give you a great variety of ways to video tape each scene.

Section No. 4

A fourth camera technique is composition which simply is placement in arrangement of the subjects and the TV frame, allowing you to constantly attract the audience's attention, to whatever part of the picture you want them to watch. (GUIDE) Good composition is sometimes simply a matter of keeping the subject in the middle of the frame. This is no great problem on a fairly stationary subject but if your subject is moving around, composition can be a real challenge. The typical situation involves a bobbing and weaving speaker, the closer in you zoom, the more dynamic the picture, but the tougher it is to keep the subject well centred. When the speaker makes only a small move, it may be better just to wait for him to shift back again to the centre of the frame. If he stays off centre too long you can correct very gently by zooming back or panning

over. (GUIDE) Good composition of even a simple subject requires a sensitivity to the pleasing placement of objects and spaces within the TV frame. It also requires a determination to keep a tightly-framed shot and then be alert for the constantly-changing composition. (GUIDE) With two or more centres of interest the tensions within the frame can become complicated. (GUIDE) The most common problem is when the subjects move apart putting them too close to the frame, with nothing of interest in the middle. the solution is to zoom back to make the big empty centre space smaller or change the camera angle and shoot over the shoulder. (GUIDE) Move in on two closely-placed subjects to help them use the space better. You can use imbalance to control your audience's attention. (GUIDE) With a lop-sided composition the audience expects something to happen in the empty space but here imbalance is unintentional. A straight zoom back leaves too much space above the head. Composition is a useful way to direct the viewer's attention; if neglected, it may accidentally direct attention where you don't intend.

Section No. 5

A fifth camera technique is the choice of camera angle. This influences composition but the psychological effects are more important; normally shoot a person from about shoulder level. (GUIDE) A high-angle shot looking down on

a person tends to make him appear weak and small. (GUIDE)

A low angle-shot looking up will make him appear large, strong and domineering. (GUIDE) Angle-shots give us a

three-dimensional quality. (GUIDE) This machine, shot

straight from the front looks dull and ~~flat~~, strictly two-

dimensional. But shooting from an angle enables us to see

the machine in perspective. The flat head-on view is good

with movement, when the subject is moving to the camera we

can achieve a dramatic suspenseful feeling. When the

subject is moving away we are left with a deserted, lonesome or completed feeling.

Section No. 6

The sixth group of camera techniques are special optical and mechanical effects. There are fish-eye lenses, which see extremely wide angles and distort your subject even

more than ordinary wide-angle lenses. (GUIDE) There are

multi-face prisms, which can multiply an image several

times. (GUIDE) There are star filters, which adds sparkle

to high lights. (GUIDE) You can also use masks, which can

be cut from cardboard, which frame a subject in a special

way. (GUIDE) And there are diffusers which can soften the

focus of the lens. (GUIDE) Vaseline on a piece of celluloid

creates a nice dream effect. The celluloid should be left

clear in the centre. Then there are the mechanical effects;

the tilted camera to imply excitement, confusion or

disorientation. (GUIDE) A see-through mirror will allow you to superimpose two subjects. (GUIDE) A front-surface mirror will allow you to show two subjects with one camera, by splitting the screen. And you can fade to black by using a simple dimmer to turn down the lights.

Section No. 7

Now we come to the seventh and last category of camera techniques, electronic effects, which extend the camera's capabilities. You can connect two cameras to a switcher and do dissolves, wipes, split screens and superimposes. (GUIDE) With your special-effects generator you can quickly and simply create abstract and unusual electronic images. These techniques are called matting and keying. (GUIDE) In this picture the person is an example of matting, which is simply replacing parts of your picture with black or white or a colour. The background sparkles are an example of keying. Keying is a technique for inserting parts of one scene into another. In this example the blue, studio wall is removed electronically and portions of a 35 millimeter slide are inserted. Keying can be a very useful and practical tool, the background can be anything at all; art work, photograph, a movie or TV picture. Another interesting electronic effect is time control. This requires a special recorder or playback unit. Still frames can help to analyse movement for example. (GUIDE) Instant replay

or slow motion of fast moving events give you and your audience time to see and discuss.

(These effects, all the electronic effects are a very special group of techniques, not strictly camera techniques but electronic manipulation of the camera-signals and extension of the camera capabilities.) * Whether you're shooting a trampoline or a title, the camera techniques and special effects we've been discussing are the language of the visual, moving medium. They're your tools for emphasizing, entertaining, organizing and explaining. Practicing them and getting a thorough knowledge of their uses will enable you to tell stories, record events, sell a product or an idea, educate and demonstrate in a creative and highly-interesting matter. The video-camera man stands at a unique vantage point, inheriting a wealth of visual techniques developed over the years and standing on the threshold of a new electronic technology with its own visual techniques. You can benefit from the new as well as the old. Don't be afraid to experiment. Through the magic of video tape you'll be able to see and perfect your techniques immediately and erase anything you don't like. In the process you'll teach your camera some old tricks and it'll teach you a few new ones.

* This sentence was omitted from the version of the tape with pauses between sections.

APPENDIX D ITEM AND TEST ANALYSIS TABLES

TABLE 10

Item and Test Analysis for Tests on Tape No. 1

Item	Difficulty Index	Discriminability Index	Item	Difficulty Index	Discriminability Index
1	0.39	0.71	1	0.58	0.90
2	0.50	0.63	2	0.45	0.80
4	0.30	1.00	5	0.54	0.90
6	0.58	0.82	6	0.79	0.73
7	0.45	0.82	7	0.66	0.79
8	0.58	0.64	8	0.75	0.87
9	0.62	0.80	10	0.41	0.91
10	0.37	1.00	11	0.50	0.60
12	0.54	0.89	14	0.41	0.89
13	0.41	1.00	15	0.79	0.69
15	0.37	0.88	17	0.41	0.86
16	0.41	0.66			

<u>Test Reliability</u> $K-R_{20} = \frac{K}{K-1} \cdot \frac{\sigma^2 - \sum p_i q_i}{\sigma^2}$ $= \frac{12}{11} \cdot \frac{9.71 - 2.88}{9.71}$ $= \boxed{0.77}$ $\sigma = 3.12 \quad \sigma^2 = 9.71 \quad \bar{x} = 5.67$ $\sum p_i q_i = 2.88$			<u>Test Reliability</u> $= \frac{11}{10} \cdot \frac{4.86 - 2.44}{4.86}$ $= \boxed{0.55}$ $\sigma = 2.21 \quad \sigma^2 = 4.86 \quad \bar{x} = 6.08$ $\sum p_i q_i = 2.44$		
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TABLE 11

Item and Test Analysis for Tests on Tape No. 2

Item	Difficulty Index	Discriminability Index	Item	Difficulty Index	Discriminability Index
5	0.63	0.73	2	0.58	0.78
6	0.63	0.67	3	0.54	0.60
7	0.54	0.80	5	0.54	0.70
8	0.71	0.67	10	0.46	0.86
9	0.58	0.89	12	0.58	0.73
10	0.75	0.62	13	0.63	0.62
11	0.54	0.78	14	0.63	0.88
12	0.75	0.62	16	0.75	0.64
13	0.63	0.78	18	0.71	0.73
15	0.63	0.73	20	0.75	0.64
17	0.75	0.64	21	0.58	0.88
19	0.54	0.89	24	0.54	0.75
20	0.75	0.67			
21	0.63	0.67			
22	0.63	0.80			

<u>Test Reliability</u> $K-R_{20} = \frac{K}{K-1} \cdot \frac{\sigma^2 - \sum p_i q_i}{\sigma^2}$ $= \frac{15}{14} \cdot \frac{15.45 - 3.35}{15.45}$ $= \boxed{0.84}$ $\sigma = 3.93 \quad \sigma^2 = 15.45 \quad \bar{x} = 9.67$ $\sum p_i q_i = 3.35$			<u>Test Reliability</u> $= \frac{12}{11} \cdot \frac{8.75 - 2.77}{8.75}$ $= \boxed{0.75}$ $\sigma = 2.95 \quad \sigma^2 = 8.72 \quad \bar{x} = 7.25$ $\sum p_i q_i = 2.27$		
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TABLE 12

Test Analysis for Delayed Observations on Tapes 1 & 2

Tape No. 1	Tape No. 2
Test Reliability	
$K-R = \frac{K}{K-1} \cdot \frac{\sigma^2 - \sum p_i q_i}{\sigma^2}$ $= \frac{10}{9} \cdot \frac{6.41 - 2.21}{6.41}$ $= \boxed{0.73}$	$= \frac{17}{16} \cdot \frac{8.45 - 2.99}{8.45}$ $= \boxed{0.69}$
$\sigma = 2.53 \quad \sigma^2 = 6.41 \quad \bar{x} = 5.29$ $\sum p_i q_i = 2.21$	$\sigma = 2.91 \quad \sigma^2 = 8.45 \quad \bar{x} = 12.05$ $\sum p_i q_i = 0.69$

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