The differential impact
of selected production
and presenter variables
in television programming
/ Gary O. Coldevin.

THE DIFFERENTIAL IMPACT OF SELECTED PRODUCTION AND PRESENTER VARIABLES IN TELEVISION PROGRAMMING

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PREFACE

General Introduction

After over two decades of educational television, the commonly employed criterion for production design is one of producer intuition and past experience. When one notes the paucity of research on content variables within the generated literature, the reasons for this intuitive approach are made obvious. Schramm (1971) underscores this point when after an exhaustive review of the literature he notes, "In contrast to the hundreds of experimental comparisons of ITV with conventional classroom teaching, there are at most a few score of studies specifically on the content and strategies of ITV". While the "media comparative effectiveness studies" (Briggs, et al, 1967; Chu and Schramm, 1967) have adequately demonstrated that television is as effective as other media and conventional teaching in imparting information, limited attention has been given to the differential examination of production techniques and their effects on learning and attitude change resulting from a particular program or series. Indeed, with the notable exception of "Sesame Street", the bulk of the research which has been forthcoming in this area has been with related media, particularly film and slides. If one excepts the McLuhan principle that each medium creates its own environment and unique reactions, one might seriously question the applicability of these studies (even though they may contribute toward a general framework for production design) particularly in the less complex media, to television.

The question more simply stated revolves around one of, "what can the producer do within program to enable a target audience to more effectively incorporate the criterion goals?" The approach is one of an internal exami-

nation and manipulation of the medium to discover what elements are most beneficial in increasing the level of information acquisition and/or attitude change from a specific production. An empirical framework of this nature may be deemed essential to ETV planners and producers operating in the natural situation. Within this context, the major contribution of "Sesame Street" has been to demonstrate that production decisions based upon empirical evidence are complimentary to effective message design.

Within the limited amount of research examining the effects of varied television production variables[1], the results are for the most part inconclusive and provide few practical guidelines for the producers. The salient reasons for this state rest with poor control over isolation of specific variables for analysis and perhaps a condition inherent in most research, generalizability only to a specific audience, subject matter content and complexity of presentation. In sum, an empirical framework appropriate for meaningful ETV production design in comparison with related audio-visual media is still in its infancy.

A production variable may be characterized as a definitive process, method or technique of television production. Shepard (1967) has isolated seven broad categories of production variables as follows:

1) Camera Factors
2) Lightning
3) Setting
4) Graphic Devices

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[1]Presently generated research has investigated the influence of colour, camera angles, eye contact, lighting, speed of presentation, music, picture size and teacher-media interaction.

5) Audio Factors
6) Performer Variables
7) Opening-Closing Format

The present research is concerned with manipulation of graphic devices, audio factors and performer variables within this broad spectrum. More specifically, this research is concentrated upon four separate studies, two examining the differential efficacy of providing review segments with varied audio and visual treatments and two examining the effects of three different types of performers on two primary dependent variables; 1) information acquisition and 2) attitude shifts. It should be noted that there are virtually no studies which have specifically investigated the television production and presenter variables under present consideration.

Content Selection & Production Rationale

Although four separate studies were conducted, the basic selection of content and production rationale was identical for each. The primary reason for this decision rested in facilitating the production within the time and costing provided. By using a central theme and production design, each of the variables under study could be examined through script changes, manipulation of graphics and similar production requirements. In essence, a basic script was produced and then modified to fit the requirements of three production designs used in the four studies. In doing so, production resources were maximized.

In designing the basic script for treatment analysis two basic criteria were employed: 1) Since the research was one of an investigatory nature, the content and structure of the productions should be that of a general information documentary appropriate for dissemination to a wide target audience

(middle primary through high school); 2) the productions should present largely novel information to negate the effects of prior knowledge. A third practical criterion dictated that the subject matter should be viewed as relevant to student classroom activities by school officials and teachers. After a number of possible subjects were considered, the topic of forest fires was chosen with program content divided into three discrete conceptual units; 1) the damage and destruction caused by forest fires, 2) the beneficial nature of most lightning set forest fires and 3) the constructive use of controlled burning (deliberately set fires under precribed conditions) to promote healthy forest growth. The results of pre-testing indicated that the objective of novel information was met in units 2) and 3) with the content of unit 1) successfully reorganized so as to present essentially more complex information about a topic familiar to subjects imbued with the objectives of the "Smokey the Bear" campaign.

The report which follows is divided into a separate detailed description and analysis of each of the four studies conducted. Given the two part nature of the presenter variable study, the discussion common to both is presented at the conclusion of Study IV as is the common list of references.

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STUDY I

PRODUCTION VARIABLE STUDY I

THE DIFFERENTIAL EFFECTS OF VOICE OVER, SUPERIMPOSITION AND COMBINED REVIEW TREATMENTS AS PRODUCTION STRATEGIES FOR ETV PROGRAMMING

RATIONALE

Although a strong theoretical tradition supports the dominance of aural-visual combinations, the empirical research is inconclusive in this regard. Nevertheless, the more prevalent form of purposive television presentation, notably among commercial advertizers, remains with a graphic superimposition supported by voice-over dialogue. The logical, although untested guideline here is that the audio-visual combination serves as a double reinforcing variable.

Much of the research in audio-visual communication stems from the Broadbent (1958) theory of perception which suggests that only one main channel carries auditory and visual signals from the sense organs to the higher centers of the brain. Inputs are stored briefly in a short term memory until a channel becomes free. The implication of this theory is that one would not expect multi-channel input of redundant information to facilitate learning. Severin's (1967) cue summation theory on the other hand predicts that learning is increased as the number of available cues or stimuli is increased. The theory also suggests, however, that multi-channel communications which combine words in two channels (words aurally and in print) will not result in significantly greater gains than a single channel communication since the added channel does not provide additional cues.

The work of Travers (1964, 1966) for the most part supports Broadbent's

theory in the finding of no significant differences between a combined audio-visual treatment and visual alone. Both treatments were more effective, however, than an auditory mode alone. These studies therefore suggest that no advantage may be derived through the use of two channels over the visual channel alone. It should be noted, however, that these results may have only limited application to television production since 1) the studies were concerned with nonsense syllables and 2) the material was presented through a synchronized film strip-tape recorder, both of which made the experiments easier to control but less applicable to reality. The present study attempts to verify the effectiveness of these variables in a meaningful situation.

Although a considerable amount of research has been conducted in the area of instructional films, for the most part the results, because of dubious experimental design and haphazard control of variables, are non-generalizable to ETV. As Hoban and Van Ormer (1950) point out, in some experiments auditory presentation has been consistently better than visual whereas in other studies the opposite results hold. Little useable residue from these studies appear to offer appropriate guidelines for television production.

Only one study reviewed has direct application to the present research. Schwarzwalder (1960) examined two levels of visual reinforcement as they affected mastery learning scores in fifth grade science. The first level used "supered graphics" in a television production while the second level presented no redundancy in this format. The results, although not significant ($p < .10$) indicated a trend of superior learning when superimpositions of reinforcing terms were added to the production. The study does not suggest, however, which type of redundancy format is the most effective for mastery learning.

After an exhaustive review of the literature, Anderson (1972) recommends

that in

> "... future research in media communication techniques, it is to be hoped that the relationships of visual communication techniques to theoretical models of perception and learning should be investigated more thoroughly than in the past. There should be a concious attempt to link production techniques to specific roles they might play in aiding particular types of learning with specific types of behavioural objectives".

With these perspectives in mind, the present study was undertaken to:

1) Assess the comparative effects of inserting review segments as opposed to no review segments within a television production on behavioural objectives of the program;

2) Isolate the differential effects of voice-over, graphic superimposition and combined voice-over and superimposition review treatments on cognitive acquisition;

3) Identify possible relationships between production review strategies and attitude shifts toward the central themes in the program.

METHODOLOGY

Production Techniques

Three television review treatment programs of 20 minutes duration each were produced, centering around the theme of forest fires. The subject was deliberately chosen to present novel material in a documentary presentation format appropriate for testing with a wide variety of educational level audiences. Each program was composed of three broad conceptual units of six

minutes each[1] with a one minute "intro" and "extro". Each of the three conceptual units were further divided into five sub-units in each program. The sub-units were then supported by either a voice-over, superimposition or combination review treatment. Review production strategies were rotated in each program to control for the possible influence of placement and content (see Appendix A) in a 3x3 Latin Square design (Kirk, 1969).

All production review treatments were inserted at the end of each of the five sub-units, i.e., placed within the conceptual unit itself. Each sub-unit was then supported with three review statements (a total of 15 statements for each conceptual unit). The voice-over treatment referred to the program narrator's voice heard over a slide being shown on the television screen. Superimposition referred to a visual graphic of the three review statements appropriate to a given sub-unit superimposed over a slide on the television screen. The combination treatment employed both the voice-over and graphic superimposition simultaneously. All production techniques, the narrator and narration were held constant for each program. The only variation in each section of the programs was the introduction of the experimental review strategies under consideration.

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[1] The three units were centered around the following themes: 1) The damage and destruction caused by forest fires; 2) The beneficial nature of most lightning set forest fires; 3) The constructive use of controlled burning (deliberately set fires under prescribed conditions) to promote healthy forest growth.

	PROGRAM I	PROGRAM II	PROGRAM III	PROGRAM IV
CONCEPTUAL	Superimposition	Voice-Over	Combination	Simple
UNIT I	Treatment	Treatment	Treatment	Treatment
CONCEPTUAL	Voice-Over	Combination	Superimposition	Simple
UNIT II	Treatment	Treatment	Treatment	Treatment
CONCEPTUAL	Combination	Superimposition	Voice-Over	Simple
UNIT III	Treatment	Treatment	Treatment	Treatment

Figure 1. ETV Production Design

NOTE: Each conceptual unit for Programs I - III was supported by 15 review statements. Review segments were deleted from Program IV.

In order to test for the comparative effectiveness of the review treatments per se, an additional program was produced consisting of identical elements of the three experimental review programs with the exception of any review segments. For the purposes of discussion and analysis this program was referred to as a "simple treatment" (See Figure 1)[2]. Additionally, all four programs were tested against a classic control group undergoing the same testing procedures as the four experimental groups with the exception of viewing

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[2]The inclusion of the "simple program", identical to the treatment programs except for the variables being examined increases the validity of comparisons being made. Other studies in this area which have found significant differences between experimental and control groups and claimed success for the experimental treatment may have been based upon invalid criteria (Ives, 1971). Such results may have been attributed to a number of interacting variables in combination with the variable being treated.

one of the programs.

Instrumentation and Testing Design

Cognitive acquisition was assessed by means of a 27 item multiple choice questionnaire (reduced from an original 45 items) and attitude shift through a negative-positive, 15 item Likert type attitude scale (Appendix C). The cognitive portion of the instrument was equally divided into 9 knowledge recall questions and the attitude scales into 5 statements for each conceptual unit. The content from which the cognitive acquisition questions derived was directly supported with one of the three review strategies under study. The experimental subjects were first administered the negative attitude pre-test and immediately after viewing one of the four programs, the cognitive test and positive attitude post-test. The same procedure was employed for the control group with the exception of the program viewing condition. All programs were transmitted through 23" monitors mounted on standard 4 foot stands. Care was taken to ensure that the maximum horizontal viewing angle was less than 30 degrees for students nearest the receiver (Gordon, 1970) and that proper viewing distances were preserved. Viewing and lighting conditions for all classrooms were kept as uniform as possible.

The forms employed by the two testing designs (Campbell & Stanley, 1966) are illustrated below.

COGNITIVE ACQUISITION (Post-Test Only Design)

R	X1	O1	Experimental Program I
R	X2	O2	Experiemntal Program II
R	X3	O3	Experimental Program III
R	X4	O4	Experimental Program IV
R		O5	Control Group

ATTITUDE SHIFT (Pre-Post Test Design)

R	O1	X1	O2	Experimental Program I
R	O3	X2	O4	Experimental Program II
R	O5	X3	O6	Experimental Program III
R	O7	X4	O8	Experimental Program IV
R	O9		O10	Control Group

NOTE: R denotes randomized grouping of subjects
X represents experimental treatment
O indicates appropriate treatment testing

All instruments were pre-tested with an identical target audience of students, and subjected to psychometric property tests of item discrimination, item difficulty and reliability (Appendix E). The content validity of the cognitive acquisition tests was assured since all questions were derived from the television program content. The K-R20 cognitive test reliability was reported at .80 (Table 3, Appendix E) with a split-half reliability of .97 (Pearson Product Moment Correlation Corrected by Spearman - Brown) for the attitude scales (Table 8, Appendix E).

Subjects

The sample consisted of 20 grade seven classes drawn from two schools in suburban Montreal. This educational level was chosen since it represented a mid-range of appropriate target audiences for the subject matter content of the television program. Four classes each were randomly assigned to one of the three review strategy treatments, the simple treatment and the control group. Individual randomization in this circumstance was precluded through original random assignment of students to classes. All subjects were tested

during one normal class period. The final assignment of questionnaires for statistical analysis totalled 100 for each treatment (all questionnaires randomly reduced to lowest common denominator, N = 500).

The average age of the sample was 12 years with 40% coming from professional homes, 29% from white collar and 29% from blue collar home backgrounds. Background information was not forthcoming on this variable for 2% of the sample. The sex distribution was 56% male and 44% female. Virtually all (99.6%) of the subjects had at least one television set in their home (Appendix F, Table 1).

Statistical Procedures

A one-way analysis of variance with five independent variable levels was employed to test for main effects of inserting review segments on cognitive acquisition. Similarly, the differential effects of the review strategies were tested with a one-way ANOVA with the appropriate three treatment levels. In both analyses, the Newman-Keuls test was applied to examination of significant mean comparisons. Attitude shifts between pre and post tests were analysed by means of two tailed *t* tests to assess significant differences between 1) mean shifts generated by review strategies and the simple treatment compared with the control group and 2) mean shifts generated by review strategies compared with the simple treatment. Significant differences were tested at the .05 level of confidence.

RESULTS

Cognitive Acquisition

The data (Table 1) reveal a highly significant difference among the

generated means for the five treatments under consideration. In applying the mean comparison test (Table 2), all three treatment strategies and simple program generated significantly superior mean cognitive acquisition gains. When the three review strategy treatments are compared with the simple treatment, however, only the superimposition and combined treatment means are significantly greater. The logical conclusion which emerges from this analysis is that the efficacy of review treatments per se are to a large extent dependent upon the type of review production strategy employed. The voice-over review strategy appears to be no more effective than the straight forward simple treatment.

Table 1

One Way Analysis of Variance of Cognitive Acquisition Means For Five Treatment Levels

Source	Sum of Squares	df	Mean Squares	F
Between Groups	3548.67	4	887.17	60.88*
Within Groups	7213.92	495	14.57	
Total	10762.59	499		

*$p < .001$

Table 2

Application of Newman-Keuls Test to Differences Between Five Cognitive Acquisition Treatment Means

Treatment	Means	$\bar{X}5$	$\bar{X}4$	$\bar{X}1$	$\bar{X}2$	$\bar{X}3$
Control	$\bar{X}5$ = 7.94	---	5.40*	6.18*	6.92*	7.32*
Simple	$\bar{X}4$ = 13.34		----	0.78	1.52**	1.92*
Voice-Over	$\bar{X}1$ = 14.12			----	0.74	1.14
Superimposition	$\bar{X}2$ = 14.86				----	0.40
Combination	$\bar{X}3$ = 15.26					----
	Wr (.05) = 1.05			1.26	1.38	1.47
	Wr (.01) = 1.38			1.57	1.67	1.75

**$p < .05$

*$p < .01$

Although the analysis of variance comparing the differential effects of the three review strategies (Table 3) did not quite reach the desired level of confidence ($p < .08$), the mean comparison test (Table 4) indicated a superior trend in comparing the effects of the combined treatment with the voice-over ($p < .06$) and superimposition with the voice-over ($p < .09$). No superior trend

was detected in the comparison of the combined and superimposition treatments. The power of the visual factor in television production review strategies is thus adequately demonstrated by these combined results. The voice-over treatment when employed singularly, in the present study, appears to be ineffectual in significantly strengthening a television production.

Table 3

One way Analysis of Variance of Cognitive Acquisition Means For Three Experimental Treatment Levels

Source	Sum of Squares	df	Mean Squares	F
Between Groups	66.91	2	33.45	2.55*
Within Groups	3889.84	297	13.10	
Total	3956.75	299		

*$p < .08$

Table 4

Application of Newman-Keuls Test to Differences Between Three Experimental Treatment Cognitive Acquisition Means

Treatment	Means	$\bar{X}1$	$\bar{X}2$	$\bar{X}3$
Voice-Over	14.12	---	0.74*	1.14**
Superimposition	14.86		----	0.40
Combination	15.26			----
	Wr (.06) =		0.94	1.13
	Wr (.09) =		0.73	0.96

* $p < .09$

** $p < .06$

Attitude Shifts

All three review treatment strategies and the simple treatment produced significantly greater mean attitude shifts between pre and post tests when compared to the control group (Table 5). No significant differences were

Table 5

Treatment Attitude Shifts Compared with Control Group

Treatment	$\bar{X}$ Shift	$\bar{X}$ Shift Control Group	t
Superimposition	1.85	0.19	7.33*
Voice-Over	1.95	0.19	7.75*
Combination	2.03	0.19	7.90*
Simple	1.75	0.19	5.93*

* df = 198; $p < .001$

found, however, in the comparison of review strategy treatment and simple treatment mean shifts (Table 6). Two possible reasons may be forwarded for this lack of significant discrimination: 1) The production itself, being directed primarily at information dissemination may not have been sufficiently dynamic to generate significant attitude shifts and/or 2) none of the review production strategies may have been intrinsically powerful enough to induce discrimination among attitude shifts. Entirely different types of review strategies may be requisite to producing significant changes in this affective domain when the main thrust of a production is one of imparting critical information.

Table 6

Review Treatment Attitude Shifts Compared with Simple Treatment

Review Treatment	$\bar{X}$ Shift	$\bar{X}$ Shift Simple Treatment	t
Superimposition	1.85	1.75	0.42
Voice-Over	1.95	1.75	0.82
Combination	2.02	1.75	1.10

df = 198; N.S.D.

DISCUSSION

The primary generalization emerging from this study is that in planning review strategies for a general information television production, producers would be ill advised to use only a voice-over treatment. For purposes of efficiency, the superimposition treatment appears to be the more suitable strategy. This is not meant to imply that the combined treatment under normal professional production conditions should be waived in favour of the superimposition treatment alone. The superiority of the combined treatment throughout the cognitive portion of the study suggests that a safety factor may be operating when the voice-over is combined with a superimposition which may accomodate a variety of "attending to the message" proclivities. The reinforcement effect from the auditory modality in the combined treatment, however,

does not appear to be of sufficient magnitude to produce a significant change in information acquisition as opposed to the impact of the visual modality alone in normally populated classroom situations.

The results reported in the present research, even though conducted under highly differing circumstances, support the conclusions of Travers in finding the auditory review mode less efficient than either the audio-visual or the visual but no significant difference between the latter two. It cannot be concluded, however, that as Travers proposes, any event which multiplies learning opportunities may be expected to increase learning. Rather, the type of sensory modality review strategy employed appears to play a significant role in satisfying ETV behavioural objectives.

The present study, being largely one of an investigatory nature indicates several avenues for further research. Replication of the methodology with varying age groupings and subject matter contents would appear as a minimal requisite. Since the present research was solely concerned with information acquisition measured at the knowledge level of the cognitive domain, different levels of questioning would validate the efficacy of the treatments in stimulating more complex learning processes. Perhaps most importantly, the amount of single and/or multi-channel reinforcement necessary to produce significant change bears closer investigation. Baggaley (1973) points to similar directions when he suggests, "The extent to which parallel information may be presented for education benefit through the auditory and visual channels of the human system before it is overloaded should certainly be investigated". Research of this nature would add valuable dimensions to the complex relationship between multi-channel communications and learning processes.

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STUDY II

PRODUCTION VARIABLE STUDY II

THE DIFFERENTIAL EFFECTS OF SPACED, MASSED AND SUMMARY REVIEW TREATMENTS AS PRODUCTION STRATEGIES FOR ETV PROGRAMMING

RATIONALE

While a number of studies have been conducted utilizing a variety of operational definitions centering around "spaced" or "distributed" vs. "massed" practice, repetition or review, the results establishing the superiority of one treatment over another are highly inconsistent. The situation is confounded by the lack of replicated studies, unique repetition forms, different learning materials and methodologies. Lists of paired-associate materials often served as criterion tasks in the majority of the early print studies (Underwood, 1961) which rendered generalizations from the experimental conditions to the classroom and meaningful situations difficult to make. Investigations which did employ meaningful material "... are subject to certain criticisms regarding methodology, primarily with respect to the inadequate control procedures used in the presentation of the experimental material ... (Reynolds and Glaser, 1964, p. 297). The inconsistent trend extends to comparisons made between and within various media presentation formats.

The majority of studies operationalized spaced practice, repetition and review as interspersed within the body of a presentation (distributed) and massed as a summary segment occuring at the termination of material presentation. Within this framework, Maccoby and Shefield (1961) found massed practice to be less effective than spaced practice for mastering a sequential

learning task while Ash and Jaspen (1953) found spaced to be more effective than massed practice in learning a military task. Similarly, studies by Underwood and Eckstrand (1967) and Rothkoph (1968) suggested that spaced was superior to massed practice in promoting the retention of verbal and motor skills. Ash (1950) & Miller and Klier (1961) on the other hand found no significant differences between the results of massed and spaced practice treatments. In summarizing the results of the earlier studies, Smith and Smith (1966) note that it is almost impossible to make any generally valid statements about the relative effectiveness of distributed vs. massed practice or of part vs. whole learning. Identical conclusions are put forward by Schramm (1971).

In assessing the research on massed vs. spaced review, a similar condition is readily apparent. While Miller and Levine (1961) found massed to be more effective than spaced review, opposite results were recorded by Reynolds and Glaser (1964) and Ausubel and Youssef (1965). McGuire (1961) found spaced review to be more effective than massed review when material was projected at a normal rate but equivalent between the two treatments when half of the instruction items were projected in slow motion. In summary, the results of former studies conducted with film (Ash, 1950; Ash and Jaspen, 1953; Maccoby and Sheffield, 1961; McGuire, 1961; Miller and Klier, 1961; Miller and Levine, 1961), programmed learning (Reynolds and Glaser, 1964), paired-associate lists (Underwood and Ekstrand, 1967) and meaningful print material (Ausubel and Youssef, 1965; Rothkoph, 1969) provide little useful residue as guidelines for the educational television producer. The generally accepted conclusion which emerges is that "... the need for repetition of material to assure mastery is well established by the experimental literature" (Lumsdaine, 1963,

p. 643). The provision of repetition, practice or review of an instructional sequence appears to be more effective than single exposure to a given unit. The most effective method of structuring a television program or series in terms of the types of review strategies under present consideration in terms of facilitating optimal information acquisition and attitude change has not been rigorously tested.

In view of the absence of empirical data, the objectives of the present study were to:

1) Assess the comparative effects of insertion of review segments under study as opposed to no review segments within a television program on strengthening retention of information derived from the program;

2) Isolate the differential effects of spaced, massed and summary review treatments on cognitive acquisition;

3) Identify possible relationships between production review strategies and attitude shifts toward the central themes in the program.

METHODOLOGY

Production Techniques

Three television review treatment programs of approximately 20 minutes duration each were produced centering around the theme of forest fires. Each program was composed of three broad conceptual units[1] with a one minute "intro" and "extro". Each of the three conceptual units was further divided into five sub-units in each program. The sub-units were then supported by either a spaced, massed or summary review treatment. Review treatment strategies were rotated in each program to control for the possible influence of placement and content (Appendix A) in a 3x3 Latin Square design (Kirk, 1969).

Both spaced and massed review segments were inserted at the end of each of the five-sub-units, i.e., within the conceptual unit itself. Each sub-unit was supported with three review statements (a total of 15 statements for each conceptual unit - 45 for each program). Summary review statements were presented at the termination of the total conceptual unit. All review segments were presented with a graphic superimposition over a slide with voice-over narration. The spaced review treatment consisted of an interval of five seconds between normal iteration of review statements. The "supered" graphic of the repetition unit was taken off immediately after the completion of the voice-over reading of the statement. A background slide of a related forest scene

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[1] The three units were centered around the following thems: 1) The damage and destruction caused by forest fires; 2) The beneficial nature of most lightning set forest fires; 3) The constructive use of controlled burning (deliberately set fires under prescribed conditions) to promote healthy forest growth.

remained on the screen during the five second pause.

Massed and summary segments were presented in normal narrative fashion. With the exception of review treatment formats and placement, all production techniques, the narrator and narration were held constant for each program (Figure 1).

	PROGRAM I	PROGRAM II	PROGRAM III	PROGRAM IV
CONCEPTUAL UNIT I	Massed Review	Summary Review	Spaced Review	Simple Treatment
CONCEPTUAL UNIT II	Summary Review	Spaced Review	Massed Review	Simple Treatment
CONCEPTUAL UNIT III	Spaced Review	Massed Review	Summary Review	Simple Treatment

Figure 1. ETV Production Design

NOTE: Each conceptual unit for Program I - III was supported by 15 review statements. Review segments were deleted from Program IV.

In order to test for the comparative effectiveness of the review treatments per se, an additional program was produced consisting of identical elements of the three experimental review treatment programs with the exception of any review segments. For the purposes of discussion and analysis this program was referred to as a "simple treatment" (see Figure 1.). Additionally, all four programs were tested against a control group undergoing the same testing procedures as the four experimental groups with the exception of viewing one of the programs.

Instrumentation and Testing Design

Cognitive acquisition was assessed by means of a 27 item multiple choice questionnaire (reduced from an original 45 items) and attitude shift through a negative-positive, 15 item Likert type (Strongly Disagree - Strongly Agree) attitude scale (Appendix C). The cognitive portion of the instrument was equally divided into 9 knowledge recall questions and the attitude scales into 5 statements for each conceptual unit. The content from which the cognitive acquisition questions derived was directly supported with one of the three review strategies under study.

The experimental subjects were first administered the negative attitude pre-test and immediately after viewing one of the four programs, the cognitive test and positive attitude post-test. The same procedure was employed for the control group with the exception of the program viewing condition. All programs were transmitted through 23" monitors mounted on standard 4 foot stands. Care was taken to ensure that the maximum horizontal viewing angle was less than 30 degrees for students nearest the receiver (Gordon, 1970) and that proper viewing distances were preserved. Viewing and lighting conditions for all classrooms were kept as uniform as possible.

The forms employed by the two testing designs (Campbell and Stanley, 1966) are illustrated below:

COGNITIVE ACQUISITION (Post-Test Only Design)

R	X1	O1	Experimental Program I
R	X2	O2	Experimental Program II
R	X3	O3	Experimental Program III
R	X4	O4	Experimental Program IV
R		O5	Control Group

ATTITUDE SHIFT (Pre-Post Test design)

R	O1	X1	O2	Experimental Program I
R	O3	X2	O4	Experimental Program II
R	O5	X3	O6	Experimental Program III
R	O7	X4	O8	Experimental Program IV
R	O9		O10	Control Group

NOTE: R denotes randomized grouping of subjects
X represents experimental treatment
O indicates appropriate treatment testing

All instruments were pre-tested with a group of 30 students identical to the final sampling population and subjected to psychometric property tests of item discrimination, item difficulty and reliability (Appendix E). The content validity of the cognitive acquisition tests was assured since all questions were derived from television program(s) content. The Kuder-Richardson 20 test revealed a cognitive test reliability of .80 (Table 3, Appendix E) with a split-half reliability of .97 (Pearson Product Moment Correlation corrected by Spearman-Brown) for the attitude scales (Table 8, Appendix E).

Subjects

The sample consisted of 20 grade seven classes drawn from two schools in suburban Montreal. This educational level was chosen since it represented a mid-range of appropriate target audiences for the subject matter content of the television program(s). Four classes each were randomly assigned to one of the three review strategy treatments, the simple treatment and the control group.

Individual randomization in this circumstance was precluded through original random assignment of students to classes. All subjects were tested during one normal class period. The final assignment of questionnaires totaled 97 for each treatment (all questionnaires reduced to lowest common denominator, N = 485).

The average age of the sample was 12 years with 51% coming from professional homes, 26% from white collar and 21% from blue collar home backgrounds. Background information was not forthcoming on this variable for 2% of the sample. The sex distribution was 48% male and 52% female. Virtually all (99.8%) of the sample reported having at least one television set in their homes (Table 2, Appendix F).

Statistical Procedures

A one way analysis of variance with five levels was employed to test for main effects of inserting review segments on cognitive acquisition. The review strategy means were isolated for each treatment program (Programs I, II and III) and combined for comparison with means generated for the simple program (Program IV) and the control group. Similarly, the combined means generated for each review strategy were compared with a one way ANOVA and the appropriate three treatment levels. The Newman-Keuls multiple comparison test (Kirk, 1969) was applied to validate significant mean differences.

Attitude shifts between pre and post tests were analysed by means of two tailed t tests to assess significant differences between 1) mean shifts generated by review strategies and the simple treatment compared with the control group and 2) mean shifts generated by review strategies compared with the simple treatment. In all analyses significant differences were tested at the .05 level of confidence.

RESULTS

Cognitive Acquisition

The data (Table 1) reveal a highly significant difference among the generated means for the combined review strategies, simple program and control group. In applying the mean comparison test (Table 2) all three treatment strategies and the simple program generated significantly superior mean cognitive acquisition gains when compared with the control group. Similarly, means generated for all three review strategy means were significantly greater than the mean generated for the simple treatment. These results suggest that all three review strategies were uniquely powerful in significantly strengthening information acquisition from the television program.

Table 1

One Way Analysis of Variance of Cognitive Acquisition Means For Five Treatment Levels

Source	Sum of Squares	df	Mean Squares	F
Between Groups	5393.64	4	1348.41	93.90*
Within Groups	6892.67	480	14.36	
Total	12286.31	484		

*$p < .001$

Table 2

Application of Newman-Keuls Test to Differences Between Five Cognitive Acquisition Treatment Means

Treatment	Means	$\overline{X5}$	$\overline{X4}$	$\overline{X1}$	$\overline{X2}$	$\overline{X3}$
Control	X5 = 8.09	----	5.52*	8.01*	8.19*	9.28*
Simple	X4 = 13.61		----	2.49**	2.67**	3.76**
Massed	X1 = 16.10			----	0.18	1.27
Summary	X2 = 16.28				----	1.09
Spaced	X3 = 17.37					----
		Wr (.05) = 1.08	1.29		1.42	1.51
		Wr (.01) = 1.42	1.61		1.72	1.79

*$p < .01$

**$p < .05$

Significant differences were also detected in comparing the means generated by each of the three review strategies (Table 3). The mean comparison test (Table 4) demonstrated a significant superiority of the spaced treatment over both the massed and summary treatments. No significant differences were noted between the latter two strategies. These results support the generalization that inclusion of the review strategy within the program may not be

more powerful than providing a total summary at the conclusion when the presentation formats of the two strategies are identical. Rather the internal distribution of review presentation appears to be a critical factor.

Table 3

One Way Analysis Of Variance Of Cognitive Acquisition Means For Three Review Strategies

Source	SUM OF SQUARES	df	MEAN SQUARES	F
BETWEEN GROUPS	91.60	2	45.80	3.40*
WITHIN GROUPS	3877.09	288	13.46	
TOTAL	3968.69	290		

*$p < .05$

Table 4

Application Of Newman-Keuls Test To Differences Between Review Strategy Cognitive Acquisition Means

REVIEW STRATEGY	MEANS	$\overline{X1}$	$\overline{X2}$	$\overline{X3}$
MASSED	X1 = 16.10	----	0.18	1.27*
SUMMARY	X2 = 16.28		----	1.09*
SPACED	X3 = 17.37			----
		Wr (.05) = 1.03		1.22

*$p < .05$

Attitude Shifts

Significant differences were detected between pre and post test attitude scores for all review treatment strategies and the simple treatment. Similarly, all four treatment mean shifts were found to be significantly greater than that generated by the control group (Table 5). When the review treatment mean shifts were compared with the shifts generated by the simple treatment, only the spaced treatment was found to be significantly more powerful (Table 6).

Table 5

Treatment Attitude Shifts Compared With Control Group

Treatment	$\bar{X}$ Shift	$\bar{X}$ Shift Control Group	t
Massed	2.02	0.25	7.81*
Summary	2.07	0.25	7.98*
Spaced	2.16	0.25	8.92*
Simple	1.68	0.25	5.57*

* df = 192; $p < .001$

Table 6

Review Treatment Attitude Shifts Compared With Simple Treatment

Review Treatment	$\bar{X}$ Shift	$\bar{X}$ Shift Simple Treatment	t
Massed	2.02	1.68	1.35
Summary	2.07	1.68	1.54
Spaced	2.16	1.68	2.02*

*df = 192; $p < .05$

These results support the conclusion that the efficacy of production review treatments per se are to a large extent dependent upon the type of review strategy employed. In the present case the spaced treatment appears to be more effective for both cognitive acquisition and attitude change.

DISCUSSION

The results of this study suggest that when information acquisition at the lower levels of the cognitive domain is the primary thrust of a television production, the spaced review sequencing appears to be the more effective strategy. A similar conclusion may be advanced with respect to inducing greater attitude change toward the primary theme within the production. No apparent advantage accrues through the selection of either a massed or summary format. The reasons for this phenomenon are perhaps best expressed in the inherent nature of the spaced format which allows for greater internalization of content and covert practice between repetitions or as Gagne (1971) has described it, a rehearsal buffer for coding and retrieval. This generalization appears appropriate for maximization of both cognitive acquisition and attitudinal change.

The investigatory nature of the present study invites research in several areas; replication of the methodology with varying age groupings and subject matter contents would appear as a minimal requisite. Since information was assessed only at the knowledge level, different levels of questioning would validate the efficacy of the treatments in stimulating more complex processes. Similarly, varying levels of material presentation tested in immediate and delayed post test retention situations would add valuable dimensions to the reported dominance of the spaced review methodology. Perhaps most importantly,

the optimum length of the time interval between spacing of review statements remain a complex variable requiring vigourous investigation.

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STUDY III

PRESENTER VARIABLE STUDY - I

SOME EFFECTS OF PRESENTER STEREOTYPING IN ETV PROGRAMMING - I

RATIONALE

The rationale for selection of television personalities has of late attracted attention in the area of newscaster influence and appeal. No studies reviewed have concentrated upon the effectiveness of presenter appeal and effectiveness in the more circumscribed area of educational television. The research conducted, however, offers little advise to the educational producer, nor to the potential news producer as well. Sanders and Pritchett (1971) for example concluded that the "ideal newscaster would be white, clean-shaven, 31-55 years of age and would wear a dark coat and whiteshirt". Shosteck (1974) listed appeal characteristics of newscasters in descending order as follows: 1) Voice and speech; 2) Professional attributes (knowledgeability, intelligence, analystic ability); 3) Personal appeal (concern, awareness) and 4) Appearance (dress, good looks, etc.). No attempt was made in the foregoing studies to empirically evaluate these characteristics on cognitive and affective dimensions. Subjects were asked for attribute preferences of news personalities only.

More recently, McMenamin (1974) found that a lecturer is considered less forceful in television presentations than in face to face lectures. The study made no attempt to measure different types of presenters nor the perceived credibility in the two presentation formats. McMenamin's conclusions, however, are well noted. "We need to know how TV students best learn, from whom, then realistically program for predetermined effects" (p. 62).

In the absence of any directly related research, this study was therefore conceived as a basic investigation into a number of comparative dimensions which might form the composite of an effective educational television presenter. Specifically, the present study was concerned with the effects of stereotyping with respect to appearance and age of three distinct types of presenters operationalized as young straight, young hip and mature straight. The attributes portrayed by each presenter were as follows. The young straight and mature straight were both neatly dressed (white shirt, and tie) with short hair styles and in general characterized as conservative in dress and appearance. The primary difference between these two presenters was age with the young straight being in his early 20's and the mature straight in the late 40's. The young hip in contrast carried the attributes of long hair, beard and casual dress (T shirt and leather vest). The age of the young hip, almost identical to the young straight was in the early 20's. The three presenters provided the basis for contrast in regard to age (youth vs. maturity) and appearance, (hip vs. straight) and combinations of age and appearance.

On the basis of the foregoing stereotyping, the objectives of the study were to:

1) Assess the differential effects of the three presenters in facilitating cognitive acquisition from a television program;

2) Identify relationships between presenter stereotyping and attitude shifts toward the central themes in the program(s);

3) Isolate the perceived degree of "communicativeness", "communicator credibility" and dynamism" of each of the presenters;

4) Ascertain relationships between a) the perceived degree of "communicativeness" and cognitive acquisition, 2) the perceived degree of communicator credibility and attitude shifts and c) the perceived degree of dynamism and attitude shifts;

5) Identify relationships between presenter stereotyping and perceived homophily with target audience;

6) Establish the perceived appropriateness of presenter characteristics for a) individual viewing, b) peer group viewing and c) the larger English speaking audience in Canada.

METHODOLOGY

Operational Definitions

Communicator credibility may be defined as the perceived characteristics of a presenter which influence the degree of acceptance of his message. Hovland, Janis and Kelly (1953) and Rogers and Shoemaker (1971) suggest that two primary components are involved: 1) Expertness or competency and 2) trustworthiness[1]. In the present research, communicator credibility is operationalized around the attributes of "knowledgeability" (the degree to which a presenter is believed to be well informed and intelligent and "trustworthiness" (the degree to which a presenter is believed to be honest and sincere).

The attribute "communicative" was operationalized and defined as "the degree to which a presenter conveys information clearly (so that it is easily understood) and "dynamic" as "the degree to which a presenter creates a strong impression". The attribute "homophily" adapted from Rogers and Shoemaker (1971) was operationalized as "the degree to which a communication source is perceived as having similar attitudes, beliefs and values as the receiver".

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[1] Hovland, Janis and Kelly (1953) define communicator credibility as 1) the extent to which a communicator is perceived to be a source of valid assertions (his expertness) and 2) the degree of confidence in the communicator's intent to communicate the assertions he considers most valid (his trustworthiness). Rogers and Shoemaker (1971) similarly define source credibility as "The degree to which a communication source is perceived as trustworthy and competent by the receiver".

Production Rationale

Three television programs of approximately 20 minutes each were produced centering around the theme of forest fires. Each program was composed of three broad conceptual units[2] with a one minute "intro" and "extro". Within each program, a different presenter was used for the presentation of each of the three conceptual units (Figure 1). This 3x3 Latin Square design (Kirk, 1969) controlled for the possible influence of placement and content of the presenters' material under study.

	PROGRAM I	PROGRAM II	PROGRAM III
CONCEPTUAL UNIT I	Young Hip	Young Straight	Mature Straight
CONCEPTUAL UNIT II	Young Straight	Mature Straight	Young Hip
CONCEPTUAL UNIT III	Mature Straight	Young Hip	Young Straight

Figure 1. ETV Production Design

Prior to program(s) production, all presenters were tested for voice characteristics and delivery formats and matched as closely as possible. Similarly, the delivery rate for identical material was controlled through numerous rehearsels. The final productions were within a range of 30 seconds variability in length and considered as highly satisfactory for testing of the variables under consideration. With the exception of presenter placement, all production

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The three units were centered around the following themes: 1) The damage and destruction caused by forest fires; 2) The beneficial nature of most lightning set fires; 3) The constructive use of controlled burning (deliberately set fires under prescribed conditions) to promote healthy forest growth.

techniques and script narration were held constant for each program. The presenters were individually seated at a lecturn in front of a limbo background. Slide inserts and graphics were kept to a minimum in order to allow each presenter maximum exposure.

All three programs were tested against a control group for cognitive acquisition and attitude shift comparisons.

Instrumentation and Testing Design

Cognitive acquisition was assessed by means of an 18 item multiple choice questionnaire and attitude shift through a negative-positive, 15 item Likert type (Strongly Disagree - Strongly Agree) five point scale. The cognitive portion of the instrument was equally divided into 6 knowledge recall questions and the attitude scales into 5 statements for each conceptual unit. Additional measures in the post test included ratings on a four point scale regarding communicative, credibility and dynamism indices of each presenter. A four point scale was also employed for homophily ratings and appropriateness of presenters for the three target audiences identified in the instrument.

The three experimental groups and the control group were first administered the negative attitude pre-test. Upon completing this task the control group was administered the cognitive test and the positive attitude post test. The experimental groups, after viewing one of the programs, were administered the following tasks:

1) Positive attitude post test;

2) Perceived age of each presenter;

3) Ratings of each speaker on a four point scale as to least and most communicative;least and most knowledgeable; least and most trustworthy; least and most dynamic;

4) Ratings of each presenter on a four point homophily scale as to least

and most likely to have the same beliefs, values and attitudes as the receiver; ratings of each presenter on a four point scale as to suitability for individual viewing, peer group viewing and the larger English speaking audience in Canada;

5) Recall of factual information on an 18 item multiple choice questionnaire;

6) Demographic and media accessibility information.

All programs were transmitted through 23" monitors mounted on standard 4 foot stands. Care was taken to ensure that the maximum horizontal viewing angle was less than 30 degrees for students nearest the monitor (Gordon, 1970) and that proper viewing distances were preserved. Viewing and lighting conditions were kept as uniform as possible for all classrooms.

The cognitive and attitude tests were pre-tested with a group of 30 students identical to the final population sampling and subjected to psychometric property tests of item discrimination, item difficulty and reliability (Appendix E). The content validity of the cognitive tests was assured since all questions were derived from television program(s) content. The K-R 20 test revealed a cognitive test reliability of .63 (Appendix E, Table 5) with a spilt-half reliability of .97 (Pearson Product Moment Correlation corrected by Spearman Brown) for the attitude scales (Appendix E, Table 8).

In order to ensure that communicator credibility, homophily and target audience appropriateness scales would not be subjected to erroneous ratings due to improper recall of presenters, photographs of all presenters were placed in the margin of the portions of the questionnaire which tested these variables. An identification of presenter placement in the program sub-titled the photographs (See Appendix D, pp.146-151). This procedure established maximum

confidence in the correct identification of the presenter with the data generated on scale ratings.

Subjects

The sample consisted of 20 grade seven classes drawn from two suburban schools in greater Montreal. This educational level was chosen since it represented a mid-range of appropriate target audiences for the subject matter content of the television program(s). More importantly, this level at the time of sampling represented the hiatus between leaving primary school and the first year of high school and thus served as an appropriate comparison for later sampling with an equivalent grouping of final year high school students. Four classes each were randomly assigned to one of the three experimental treatments and the control group. Individual randomization in this case was precluded through original random assignment of students to classes. All subjects were tested during one normal class period. The final assignment of questionnaires for each treatment totalled 90 (all questionnaires reduced to the lowest common denominator, N = 360).

The average age of the sample was 12 years with 34% coming from professional homes, 32% from white collar and 32% from blue collar home backgrounds. Information on this variable was not forthcoming for 2% of the sample. The sex distribution was 51% male and 49% female. Virtually all (99.2%) of the sample reported having at least one television set in their homes (Appendix F, Table III).

Statistical Procedures

A one way analysis of variance with four levels was used to test for main effects of presenter stereotyping on cognitive acquisition. The means generated for questions appropriate to each presenter's material were isolated

for each program and combined for comparison with the mean generated by the control group. The Newman-Keuls multiple comparison test (Kirk, 1969) was applied to validate significate mean differences.

Attitude shifts between pre and post tests were analysed by means of two tailed t tests in assessing significant differences between 1) pre and post tests for experimental groups, 2) mean shifts generated by experimental treatments and the control group and 3) mean shifts generated by the three experimental treatments.

Chi-square tests were used to analyse the following data:

1) Ratings indicating which presenters were thought to be most and least communicative;

2) Ratings indicating which presenters were thought to be most and least knowledgeable;

3) Ratings indicating which presenters were thought to be most and least trustworthy;

4) Ratings indicating which presenters were thought to be most and least dynamic;

5) Ratings indicating which presenters were thought to be most and least homophilous with the target audience;

6) Ratings indicating which presenters were most and least acceptable for individual viewing;

7) Ratings indicating which presenters were most and least acceptable for peer group viewing;

8) Ratings indicating which presenters were most and least acceptable for the larger English speaking Canadian audience.

In all analyses, significant differences were tested at the .05 level of confidence.

RESULTS

Presenter Attribute Comparisons

Table 1 presents the generated scale rating means for presenter attribute comparisons of communicativeness, knowledgeability, trustworthiness and dynamism. When the raw data were subjected to Chi-square analysis, no significant differences were found between communicative (Table 2) and dynamic (Table 5) ratings. Significant differences were found in scale ratings of knowledgeability (Table 3) and trustworthiness (Table 4). In both measures, which together

Table 1

Scale Rating Means of Presenter Attributes

Attribute	Young Hip	Young Straight	Mature Straight
Communicative	3.085	3.104	3.195
Knowledgeable	3.033	3.174	3.326
Trustworthy	2.985	3.130	3.248
Dynamic	2.981	3.041	3.030

constitute source credibility, the mature straight was significantly rated higher than either the young straight or young hip. No significant differences were detected between ratings of the young hip and young straight on the knowledgeable scale, however, the young straight was rated significantly higher ($p < .05$) on the trustworthy scale. Trustworthiness for this target audience appears to be correlated with a conservative, "straight" presenter. Credibility,

on the other hand, which combines the attributes of knowledgeability and turust-worthiness, appears to significantly favour the mature straight (combination of maturity and conservative appearance) as opposed to either of the two younger counterparts.

Table 2

Scale Ratings on Attribute "Communicative"

Presenter	Not Communicative At All 1	2	3	Very Communicative 4	Total
Young Hip	(2%) 5	(20%) 54	(46%) 124	(32%) 87	270
Young Straight	(2%) 4	(15%) 41	(55%) 148	(28%) 77	270
Mature Straight	(2%) 5	(13%) 35	(52%) 138	(33%) 88	270

$X^2 = 7.64$ df = 6 N.S.D.

Table 3

Scale Ratings on Attribute "Knowledgeable

Presenter	Not Knowledgeable At All 1	2	3	Very Knowledgeable 4	Total
Young Hip	(3%) 8	(15%) 40	(58%) 157	(24%) 65	270
Young Straight	(2%) 5	(11%) 29	(55%) 150	(32%) 86	270
Mature Straight	(2%) 4	(8%) 22	(46%) 126	(44%) 118	270

$X^2 = 26.51$ df = 6 $p < .001$

Table 4

Scale Ratings on Attribute "Trustworthy"

Presenter	Not Trustworthy At All 1	2	3	Very Trustworthy 4	Total
Young Hip	(4%) 10	(17%) 47	(56%) 150	(23%) 63	270
Young Straight	(2%) 5	(10%) 27	(61%) 166	(27%) 72	270
Mature Straight	(2%) 5	(9%) 25	(51%) 138	(38%) 102	270

$X^2 = 24.63$ df = 6 $p < .001$

Table 5

Scale Ratings on Attribute "Dynamic"

Presenter	Not Dynamic At All 1	2	3	Very Dynamic 4	Total
Young Hip	(4%) 12	(20%) 53	(49%) 133	(27%) 72	270
Young Straight	(3%) 8	(18%) 48	(52%) 140	(27%) 74	270
Mature Straight	(3%) 8	(21%) 58	(46%) 122	(30%) 82	270

$X^2 = 4.07$ df = 6 N.S.D.

Cognitive Acquisition

Significant differences were found among the generated cognitive acquisition means (Table 6) between the three experimental groups and the control group. In applying the mean comparison test, all three treatment means were

Table 6

One Way Analysis of Variance of Cognitive Acquisition Means for Four Levels

Source	Sum of Squares	df	Mean Squares	F
Between Groups	359.09	3	119.70	24.17*
Within Groups	1763.40	356	4.95	
Total	2122.49	359		

* $p < .001$

found to be significantly greater than the control group, however, no significant differences were detected between the treatment means per se. These results correlate well with the lack of significant differences in scale ratings on the "communicativeness" attribute and suggest that all three presenters communicated factual information with equal clarity.

Table 7

Application of Newman-Keuls Test to Differences Between Four Cognitive Acquisition Means

Treatment	Means	$\bar{X}1$	$\bar{X}2$	$\bar{X}3$	$\bar{X}4$
Control	$\bar{X}1$ = 5.689	-----	1.811*	2.300*	2.555*
Young Straight	$\bar{X}2$ = 7.500		-----	0.489	0.744
Young Hip	$\bar{X}3$ = 7.989			-----	0.255
Mature Straight	$\bar{X}4$ = 8.244				-----
		Wr(.05) = 0.66		0.79	0.87
		Wr(.01) = 0.87		0.99	1.06

*$p < .01$

Attitude Shifts

Significant differences were found between pre and post tests ($p < .001$) for each of the three experimental treatments. Similarly, all experimental mean attitude shifts were significantly greater than that generated by the control group (Table 8). When the treatment shifts were compared, however, no significant differences were noted as a result of the three presenter stereotypes (Table 9). This lack of significant difference may be attributed to the

non-significant differences uncovered in homophily ratings and appropriateness of presenters for peer group viewing (see p. 60).

Table 8

Treatment Attitude Shifts Compared With Control Group

Treatment	$\bar{X}$ Shift	$\bar{X}$ Shift Control Group	t
Young Hip	1.74	0.34	5.68*
Young Straight	1.73	0.34	5.63*
Mature Straight	1.91	0.34	6.43*

* df = 178 $p < .001$

Table 9

Presenter Treatment Attitude Shift Comparisons

Treatment Comparison	t
Young Hip vs. Young Straight (1.74) (1.73)	.05
Mature Straight vs. Young Hip (1.91) (1.74)	.82
Mature Straight vs. Young Straight (1.91) (1.73)	.87

df = 178 N.S.D.

Presenter Homophily Ratings

Table 10 presents the generated scale rating means for the three presenter homophily indices. When the raw frequency distribution was subjected to a Chi-square analysis, no significant differences were detected between presenter rating postures (Table 11). These results suggest that the subjects were not able to make a clear distinction between the three presenters in terms of a belief and value structure propinquity. The data are all the more interesting

Table 10

Scale Rating Means of Perceived Homophily With Presenter

Presenter	Mean
Young Hip	2.744
Young Straight	2.607
Mature Straight	2.741

Table 11

Scale Ratings of Likelyhood of Holding Similar Beliefs, Values and Attitudes as Presenter

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(7%) 19	(30%) 82	(44%) 118	(19%) 51	270
Young Straight	(10%) 27	(30%) 82	(49%) 131	(11%) 30	270
Mature Straight	(6%) 16	(31%) 84	(46%) 124	(17%) 46	270

$X^2 = 9.53$ df = 6 N.S.D.

in view of the perceived age of each of the presenters, which correlated well with their actual age. The following perceptions of average age were submitted: Young hip, 20 - 29; Young straight, 20 - 29; Mature straight, 40 - 49 (See Appendix G, Table I). Within this population no clear cut correlation with homophily and presenter stereotyping can be extablished. Rogers (1971) has suggested that in a free choice situation, when a source can interact with any of a number of individual, there is a strong tendency for him to select a receiver who is most like himself. In the present study, this tendency appears to be equally spread over the three presenters, a product which may be the result of television per se. Reactions in real life situations may be much different. The fact that the presenters were viewed on television and perceived as clearly older than the respondents' peer group may account for the lack of significant discrimination in this middle school population.

Target Audience Preference Ratings

Table 12 presents the scale rating means of perceived appropriateness of presenter characteristics for the three target audiences identified. When the

Table 12

Scale Rating Means of Perceived Appropriateness of Presenters for Three Target Audiences

Target Audience	Young Hip	Young Straight	Mature Straight
Individual	2.552	2.607	2.741
Peer Group	2.789	2.674	2.607
Larger English Speaking Audience	2.589	2.696	2.944

distribution of raw frequencies were analysed through Chi-square tests, no significant differences were found in scale ratings for individual viewing preferences (Table 13) and peer group viewing (Table 14). Interestingly,

Table 13

Scale Ratings of Preferential Choice of Presenter for Individual Programming

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(10%) 28	(39%) 104	(37%) 99	(14%) 39	270
Young Straight	(11%) 29	(36%) 97	(36%) 97	(17%) 47	270
Mature Straight	(12%) 32	(31%) 83	(32%) 88	(25%) 67	270

$X^2 = 11.59$ df = 6 N.S.D.

Table 14

Scale Ratings of Preferential Choice of Presenter for Peer Group Programming

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(7%) 20	(29%) 79	(41%) 109	(23%) 62	270
Young Straight	(9%) 23	(32%) 86	(43%) 117	(16%) 44	270
Mature Straight	(11%) 29	(36%) 98	(34%) 93	(19%) 50	270

$X^2 = 9.90$ df = 6 N.S.D.

most subjects were agreed on the appropriateness of the mature straight as the most suitable presenter for the larger English speaking audience in Canada (Table 15). No significant differences were detected between ratings of the young hip and young straight. To a large extent, the data support the rationale for the types of presenters now being employed in educational presentations by

Table 15

Scale Ratings of Preferential Choice of Presenter for Larger English Speaking Canadian Audience Programming

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(9%) 23	(40%) 109	(35%) 94	(16%) 44	270
Young Straight	(8%) 21	(34%) 92	(39%) 106	(19%) 51	270
Mature Straight	(8%) 22	(22%) 59	(38%) 103	(32%) 86	270

$X^2 = 32.56$ df = 6 $p < .001$

the Canadian networks. A possible spin off may also be apparent from the influence of news presenters, the anchormen of whom are predominantly in the mature straight classification.

STUDY IV

PRESENTER VARIABLE STUDY - II

SOME EFFECTS OF PRESENTER STEREOTYPING IN ETV PROGRAMMING - II

RATIONALE

The basic rationale established for the Presenter Variable Study I (see p. 35) is equally appropriate to the present study. In the present case, the only changes made were to substitute a grade eleven population sampling, which in the school system studied represented the leaving year of high school. The former grade seven sampling constituted the first year of high school and given the adolescent growth period between the two samplings, it seemed reasonable to conclude that differing perceptions of television presenter utility might also be present. As noted earlier, no studies have been conducted in this area utilizing a television format as conceived herein. The replication of the study with differing age groupings provided a unique opportunity to validate and compare the perceptions of varied presenter stereotypes.

Identical to the former study, the objectives of the present research were to assess and compare:

1) The differential effects of three stereotyped presenters in facilitating cognitive acquisition from a television program;

2) Relationships between presenter stereotyping and attitude shifts toward the central themes in the program(s);

3) The perceived degree of "communicativeness", "communicator credibility" and "dynamism" of each presenter;

4) Relationships between a) the perceived degree of communicativeness and cognitive acquisition, b) the perceived degree of communicator credibility and

attitude shifts and c) the perceived degree of dynamism and attitude shifts;

5) Relationships between presenter stereotyping and perceived homophily with the target audience;

6) The perceived appropriateness of presenter characteristics for a) individual viewing, b) peer group viewing and c) the larger English speaking audience in Canada.

METHODOLOGY

Production Rationale

The production rationale utilized in the present study was identical to that employed in the earlier study. The same television programs were utilized in both studies.

Instrumentation and Testing Design

In order to provide for direct comparison with the grade seven sampling, the same questionnaire was administered to the grade eleven respondents. Prior to the sampling, the cognitive and attitude tests were pre-tested with a group of 30 students identical to the final sample population and subjected to psychometric property tests of item discrimination, item difficulty and reliability (Appendix E). The K-R 20 test revealed a cognitive reliability of .74 (Appendix E, Table 7) with a split-half reliability of .85 for the attitude scales (Appendix E, Table 9). All administration and testing procedures were identical to those employed in the grade seven sampling.

Subjects

The sample consisted of 20 grade seven classes drawn from two schools in suburban Montreal. Four classes each were randomly assigned to one of the three experimental treatments and the control group. As was the case with the grade

seven sample, individual randomization was precluded through original random assignment of students to classes. All subjects were tested during one normal class period. In order to provide for equal n's with the grade seven sampling, all questionnaires were randomly reduced to 90 for each treatment (N = 360).

The average age of the sample was 16 with 47% coming from professional homes, 30% from white collar and 21% from blue collar home backgrounds. Information was not avaliable for 2% of the sample. The sex distribution was 47% male and 53% female. Similar to the grade seven sample, virtually all of the subjects (99.3%) had at least one television set in their homes (Appendix F, Table IV).

Statistical Procedures

Although all statistical procedures employed were identical to those utilized in the former study, they are presented here for textual coherency.

A one way analysis of variance with four levels was used to test for main effects of presenter stereotyping on cognitive acquisition. The presenter means were isolated for each program and combined into a grand mean for comparison with the mean generated by the control group. The Newman-Keuls multiple comparison test (Kirk, 1969) was applied to validate significant mean differences.

Attitude shifts between pre and post tests were analysed by means of two tailed t tests in assessing significant differences between 1) pre and post tests for experimental groups, 2) mean shifts generated by experimental treatments and the control group and 3) mean shifts generated by the three experimental treatments.

Chi-square tests were used to analyse the following data:

Ratings indicating which presenters were thought to be:

1) Most and least communicative;

2) Most and least knowledgeable;

3) Most and least trustworthy;

4) Most and least dynamic;

5) Most and least homophilous with target audience;

6) Most and least acceptable for individual viewing;

7) Most and least acceptable for peer group viewing;

8) Most and least acceptable for larger English speaking Canadian audience.

In all analyses, significant differences were tested at the .05 level of confidence.

RESULTS

Presenter Attribute Comparisons

Table 1 presents the generated scale rating means for attribute comparisons of communicativeness. knowledgeability, trustworthiness and dynamism. The raw score Chi-square analysis produced no significant differences in the ratings of communicativeness of each presenter (Table 2). Significant differences were

Table 1

Scale Rating Means of Presenter Attributes

Attribute	Young Hip	Young Straight	Mature Straight
Communicative	3.163	3.074	3.156
Knowledgeable	3.074	3.270	3.548
Trustworthy	2.941	3.089	3.285
Dynamic	3.007	2.833	2.722

found in ratings of knowledgeability (Table 3), trustworthiness (Table 4) and dynamism (Table 5). The mature straight presenter was viewed as significantly more knowledgeable and trustworthy than either the young hip or young

Table 2

Scale Ratings on Attribute "Communicative"

Presenter	Not Communicative At All 1	2	3	Very Communicative 4	Total
Young Hip	(1%) 3	(14%) 39	(52%) 139	(33%) 89	270
Young Straight	(1%) 2	(18%) 49	(54%) 146	(27%) 73	270
Mature Straight	(.4%) 1	(18%) 48	(48%) 130	(33.6%) 91	270

$X^2 = 5.58$ df = 6 N.S.D.

Table 3

Scale Ratings on Attribute "Knowledgeable"

Presenter	Not Knowledgeable At All 1	2	3	Very Knowledgeable 4	Total
Young Hip	(2%) 5	(15%) 40	(57%) 155	(26%) 70	270
Young Straight	(.4%) 1	(6.3%) 17	(59.3%) 160	(34%) 92	270
Mature Straight	(.4%) 1	(3.3%) 9	(37.3%) 101	(59%) 159	270

$X^2 = 83.72$ df = 6 $p < .001$

Table 4

Scale Ratings on Attribute "Trustworthy"

Presenter	Not Trustworthy At All 1	2	3	Very Trustworthy 4	Total
Young Hip	(2%) 5	(22%) 60	(56%) 151	(20%) 54	270
Young Straight	(.4%) 1	(13.6%) 37	(63%) 169	(23%) 63	270
Mature Straight	(1%) 3	(8%) 21	(53%) 142	(38%) 104	270

$X^2 = 43.95$ df = 6 $p < .001$

Table 5

Scale Ratings on Attribute "Dynamic"

Presenter	Not Dynamic At All 1	2	3	Very Dynamic 4	Total
Young Hip	(5%) 13	(21%) 57	(43%) 115	(31%) 85	270
Young Straight	(5%) 13	(26%) 71	(50%) 134	(19%) 52	270
Mature Straight	(4%) 12	(36%) 96	(43%) 117	(17%) 45	270

$X^2 = 27.34$ df = 6 $p < .001$

straight. In both of these measures, however, the young straight was perceived as being significantly more credible ($p < .05$) than the young hip. Conversely, the young hip was perceived as creating a significantly stronger impression (significantly more dynamic) than either the young straight or mature straight (Table 5). No significant differences were detected between the latter two presenters on the dynamism ratings.

Cognitive Acquisition

Significant differences were found among the generated cognitive acquisition means of the three treatment groups and the control group (Table 6). In applying the mean comparison test, all treatment means were found to be significantly greater than the control group mean, however, no significant differences were detected between the treatment means per se (Table 7). Similar to the previous study, these results correlate well with the lack of significant differences in scale ratings of the "communicative" attribute and suggest that all three presenters communicated factual information with equal clarity.

Table 6

One Way Analysis of Variance of Cognitive Acquisition Means for Four Levels

Source	Sum of Squares	df	Mean Squares	F
Between Groups	415.18	3	138.39	27.62*
Within Groups	1783.60	356	5.01	
Total	2198.78	359		

* $p < .001$

Table 7

Application of Newman-Keuls Test to Differences Between Four Cognitive Aquisition Means

Treatment	Means	$\bar{X}1$	$\bar{X}2$	$\bar{X}3$	$\bar{X}4$
Control	$\bar{X}1$ = 3.200	-----	7.633*	7.889*	7.989*
Young Straight	$\bar{X}2$ = 10.833		-----	0.256	0.356
Young Hip	$\bar{X}3$ = 11.089			-----	0.100
Mature Straight	$\bar{X}4$ = 11.189				-----
		Wr(.05) = 0.66		0.79	0.87
		Wr(.01) = 0.87		0.99	1.06

* $p < .01$

Attitude Shifts

Significant differences were found between pre and post test attitude scores ($p < .001$) for each of the three experimental treatments. These attitude shifts were all significantly greater than that generated by the control group (Table 8). When the treatment shifts were compared, the young hip stereotype produced a significantly greater mean shift when compared to the young straight (Table 9). No significant differences were noted with respect to the young hip and mature straight comparisons. In comparison to the previous study, the subjects in the present study appear to have been sufficiently affected by the delivery of the young hip so as to produce a significant attitude shift in treatment comparisons. This shift appears to have been considerably influenced by the homophily ratings (see Table 11, p.62) and suitability of presenters for

peer group viewing (Table 14, p. 65) both indices of which significantly favour the young hip.

Table 8

Treatment Attitude Shifts Compared With Control Group

Treatment	$\bar{X}$ Shift	$\bar{X}$ Shift Control Group	t
Young Hip	2.34	0.23	12.74*
Young Straight	1.90	0.23	10.41*
Mature Straight	2.24	0.23	11.53*

*df = 178 $p < .001$

Table 9

Presenter Treatment Attitude Shift Comparisons

Treatment Comparison	t
Young Hip (2.34) vs. Young Straight (1.90)	2.08*
Young Hip (2.34) vs. Mature Straight (2.24)	0.49
Mature Straight (2.24) vs. Young Straight (1.90)	1.78

* df = 178 $p < .05$

Presenter Homophily Ratings

Table 10 presents the scale rating means for the three presenter homophily indices. When the raw frequency distribution was subjected to a Chi-square analysis, significant differences were detected (Table 11). The young hip was rated as significantly more homophilous in terms of beliefs, values and attitudes than the mature straight ($p < .001$) as was the young straight ($p < .01$). No significant differences were found between ratings on the two younger presenters.

Table 10

Scale Rating Means of Perceived Homophily With Presenter

Presenter	Mean
Young Hip	2.796
Young Straight	2.704
Mature Straight	2.541

Table 11

Scale Ratings of Likelyhood of Holding Similar Beliefs, Values and Attitudes as Presenter

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(4%) 11	(27%) 73	(54%) 146	(15%) 40	270
Young Straight	(2%) 6	(26%) 97	(51%) 138	(11%) 29	270
Mature Straight	(9%) 25	(33%) 90	(52%) 139	(6%) 16	270

$X^2 = 27.83$ df = 6 $p < .001$

Similar to the grade seven sampling, the present respondents submitted the following perceptions of average age of each of the presenters: Young Hip, 20 - 29; Young Straight, 20 - 29; Mature Straight, 40 - 49 (See Appendix G, Table II). In contrast to the younger population, this middle adolescent sample was clearly more oriented to proximity with their own age grouping in terms of homophilous attributes with the highest rating accorded to the young hip presenter. For the majority of this sampling, the young hip appeared to possess the more similar beliefs, values and attitudes.

Target Audience Preference Ratings

Table 12 presents the scale rating means of perceived appropriateness of presenter characteristics for the three target audiences identified. When the raw frequency distribution was analysed through Chi-square tests, no significant differences were found for scale ratings of individual viewing preferences

Table 12

Scale Rating Means of Perceived Appropriateness of Presenters for Three Target Audiences

Target Audience	Young Hip	Young Straight	Mature Straight
Individual	2.519	2.537	2.422
Peer Group	2.704	2.589	2.385
Larger English Speaking Audience	2.315	2.704	2.915

(Table 13). Significant differences were detected, however, in the preferential choice of presenters for peer group viewing (Table 14) and the larger English speaking audience in Canada (Table 15). In the former case, the young hip was significantly favoured over the mature straight ($p < .001$) as was the young straight ($p < .01$). No significant differences were found between the ratings of the two younger presenters. Alternatively, the mature straight was significantly favoured over both the young hip and young straight as the more appropriate presenter for the larger English speaking Canadian audience. In this latter case, the young straight was also rated as significantly more appropriate ($p < .001$) than the young hip.

Table 13

Scale Ratings of Preferential Choice of Presenter for Individual Programming

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 3	Total
Young Hip	(12%) 33	(38%) 102	(36%) 97	(14%) 38	270
Young Straight	(9%) 24	(42%) 113	(36%) 97	(13%) 36	270
Mature Straight	(16%) 44	(40%) 106	(30%) 82	(14%) 38	270

$X^2 = 8.24$ df = 6 N.S.D.

Table 14

Scale Ratings of Preferential Choice of Presenter for Peer Group Programming

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(9%) 25	(30%) 81	(43%) 116	(18%) 48	270
Young Straight	(9%) 25	(34%) 92	(45%) 122	(12%) 31	270
Mature Straight	(15%) 40	(43%) 117	(30%) 82	(12%) 31	270

$X^2 = 26.02$ df = 6 $p < .001$

Table 15

Scale Ratings of Preferential Choice of Presenter for Larger English Speaking Canadian Audience Programming

Presenter	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4	Total
Young Hip	(15%) 41	(46%) 125	(31%) 82	(8%) 22	270
Young Straight	(7%) 19	(32%) 87	(44%) 119	(17%) 45	270
Mature Straight	(4%) 10	(27%) 74	(43%) 115	(26%) 71	270

$X^2 = 70.49$ df = 6 $p < .001$

DISCUSSION

On the basis of comparison with the younger sampling, the data gathered during the present study underline several similarities and at first glance, several conflicting results. Before enlarging on these, it should be kept in mind that no presenter in the grade seven sampling was perceived as possessing more homophily than another and as mentioned earlier, the proximity to a peer group presenter may have accounted for this posture. For the purposes of discussion, one might conclude that all three presenters were perceived as heterophilous with this target population. In the grade eleven sampling, both younger presenters were viewed as significantly more homophilous than the mature straight with the more powerful similarity accruing to the young hip. The mature straight may therefore be classified as heterophilous and the young hip as the most homophilous with this older adolescent population. This premise is further supported in the ratings of young hip appropriateness for peer group programming.

The more powerful similarity between the two sampling concerns the perceived credibility of the mature presenter. It can be hypothesized that this credibility in both cases is content oriented, that is to say, the mature presenter's perceived vaster knowledge of the subject area as a bi-product of maturity and concomitant trustworthiness deriving from experience. This view is not incompatible with theory in the area. Berlo et al (1969) suggest that there are at least two dimensions of source credibility: 1) qualification or expertness, and 2) safety. It is assumed in the present case that the qualification or expertness dimension of credibility is operational with respect to the credibility rating of the mature straight. This premise is enlarged upon by Rogers and Bhowmik (1970) when they note, "A source who is perceived as

as possessing qualification credibility is usually heterophilous with respect to his receivers; for instance a change agent must know more about the innovations he is introducing than his clients or they will not view him as especially qualified. But a source perceived as possessing safety credibility often is more homophilous with respect to his receivers; peers usually have this type of credibility while a change agent does not" (p. 534). The qualification aspect of the mature presenter's credibility is bourne out by the lack of significant attitude change deriving from his delivery. Rogers and Bhowmik note that qualification credibility is more important when an individual is gaining information about a new subject. But at the persuasion stage when an individual is forming a positive attitude toward the subject, homophilous sources are more important since they possess safety credibility. In the older sampling, the attitude change was strongly supported with homophily ratings of the young hip presenter. This phenomenon was further strengthened by the young hip ratings on dynamism and appropriateness for peer group programming. The lack of significant differences on the dynamism, homophily and appropriateness for peer group viewing within the grade seven sample may therefore have accounted for non-significant attitude shifts. Although additional research utilizing stereotyped peer group presenters across age groupings is necessary to validate this reasoning, the results from the present study appear to support the Rogers and Bhowmik theory.

The second major area of similarity between the two samplings, the significant ratings of the mature presenter as the most appropriate for communicating to the larger Canadian audience may be a present television effect and conditioning to the status quo. Newscasters and educational presenters currently utilized by the networks approach the mature straight stereotype.

The present study chose a general information, documentary type of production since much of educational television (both formal and informal) is concerned with this type of programming. Given the investigatory, first study approach, it was also deemed the more logical place to begin this type of research. Because of the non-sensitive nature of the present subject matter, however, it should be emphacized that different topics with varying degrees of sensitivity such as drug use and sexual mores may produce entirely different types of responses. Similarly, a variety of presenters chosen on the basis of other stereotypes would add particularly useful additions to the presently generated data - as would the counterposing of male and female presenters. The primary area of needed replication of the present research as noted earlier, however, rests with the relationship of peer group homophily and attitude change.

Finally, it should be noted that television research appears to be unique and one which profits only generally from related face to face situations. Further research should be this carefully in mind when attempting to generalize across media and traditional teaching learning situations. It is conceivable that a rigorous matrix of presenter suitability for differing subject areas and audiences may be impossible to realize. Nevertheless, as the present research has demonstrated, differing target levels appear to profit from the perceived identification with and appropriateness of various presenter stereotypes. An approximation based on empirical data may be far more effective than the current mode of presenter selection in this important television production variable.

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APPENDIX A

PROGRAM SCRIPTS - PRODUCTION VARIABLE STUDIES I AND III

PROGRAM SCRIPTS - PRODUCTION VARIABLE STUDIES I AND II

DETAILED EXPLANATION OF REVIEW TREATMENTS

There were a total of fifteen review units with the first five (1-5) appearing in section one, the second five (6-10) in section two and the third five (11-15) in section three of each review treatment program. Each review unit was composed of three separate redundant information statements contained within each program. The statements numbered and lettered below are written in the form corresponding to the actual form used in the information keying techniques, e.g., "2 1/2" instead of "two and one half" may begin a sentence. The numbers and letters assigned to each review unit did not appear in the graphics used for keying. Each review unit, though titled below after the appropriate group number, was not titled in any of the programs.

1. Importance of the forest industry.

    a. The forest industry employs over 300 thousand people.
    b. 20 percent of Canada's exports are forest products.
    c. 50 percent of Canada's land mass is covered by forests.

2. Destruction caused by forest fires.

    a. There are 6-8,000 forest fires yearly in Canada.
    b. Forest fires burn more than 2 million acres or 10 percent of all productive land.
    c. Over 18 million dollars worth of trees are lost yearly through forest fires.

3. Types of forest fires.

   a. A ground fire smoulders and burns beneath the surface.
   b. A surface fire starts and burns on the surface.
   c. A crown fire spreads from the surface to tree tops.

4. Causes of forest fires.

   a. Over 75 percent of all forest fires are started by man.
   b. 34 percent of man caused fires result from carelessness.
   c. Some man caused fires result from railway and forest industry accidents; others are set for wilful destruction.

5. Ways to fight forest fires.

   a. Canada spends over 18 million dollars a year to fight fires.
   b. Money is spent on lookout towers, bulldozers, and water bombing.
   c. Prevention is the most effective method of fighting fires.

6. Characteristics of lighting fires.

   a. 25 percent of all forest fires are started by lightning.
   b. Lightning fires usually occur during the presence of rain.
   c. Lightning fires are usually surface fires which do little damage.

7. Characteristics of a dense forest.

   a. Deadfall and underbrush serve as fuel for fires.
   b. Underbrush robs large trees of nourishment.
   c. Insects attack and weaken large trees.

8. Characteristics of a regularly burned forest.

   a. Litter and underbrush accumulate less in a regularly burned forest.
   b. Insects that attack trees are killed off in a regularly burned forest.
   c. Large trees are strengthened in a regularly burned forest.

9. Results of small fires.

   a. The mineral content of the soil increases after small fires.
   b. Small fires create open spaces.
   c. Small fires clear off litter from the surface floor.

10. Benefits to animals in regularly burned areas.

   a. 2 1/2 times as many deer live in a regularly burned area.
   b. Game birds are unable to find food when litter is deeper than 6 inches.
   c. 3 times as many birds live in a regularly burned area.

11. Uses of fire by early man.

   a. Early man used fires to clear lands for hunting and grazing.
   b. Early man used fires to clear areas for home building.
   c. Early man used fires to create fields for planting.

12. Specific uses of fire by early man

   a. Ashes from fire served as fertilizer.
   b. Fire eliminated weeds and competing plants.
   c. Fire promoted the flowering of chia, a seed producing plant.

13. Conditions for controlled burning.

   a. The area should be damp when starting a controlled burn.
   b. For controlled burning the wind should be calm.
   c. The burn should be started in the late afternoon.

14. Methods for controlled burning.

   a. Valleys and hills are burned from the top down.
   b. Open areas are burned from natural boundaries such as roads and streams.
   c. The drip torch method, using a mixture of gas and oil which sticks to vegetation makes burning more effective.

15. Benefits of controlled burning.

    a. Controlled burning restricts build up of deadfall and underbrush.
    b. Controlled burning clears areas for birds and animals to live in.
    c. Controlled burning increases the mineral content of the soil.

SCRIPT SYMBOLS AND ABBREVIATIONS

An Arabic numeral placed flush with the left margin designates the camera shot number for both video and audio portions. If the shot number is level with a blank audio portion, there was no sound for the duration of the corresponding video portion. Shots were sequentially numbered in program IV, but in programs I, Ia, II, IIa, III, and IIIa, the letter "T" followed by an Arabic numeral identified the intervention of an experimental treatment. The numbers in the treatment designations correspond to the numbers assigned to the review unit groups. In the particular case of spaced repetitions (Production Variable Study II), a lower case letter following the treatment number was used to designate a change in video shots. However, the number and lower case letter used in conjunction with the letters "SR" indicate the repetition group number and the particular instructional statement that was repeated. For example, T1c, the shot following shot number T1b in the script for program III, means the treatment was still the first one for the program and the repetitions were from group one but ST1c specifies further that the particular statement that was repeated came from statement "c" in group "1".

The letter "C" followed by an arabic numeral designates the camera number, e.g., C1 is read as camera one. The conventional signals used to designate framing shots are MS for a medium shot, CU for a close-up, and TCU for a tight close-up. An abbreviation for "telecine", TC, designates a visual switch to a slide. The abbreviation, VTR, designates a video tape recording.

The term "KEYED INTO" as it appears in the scripts designates a special electronic effect which superimposes the image of one camera into the image of another. In the production of all review treatment programs, white letters on black poster board were used for keying into the image of the telecine camera resulting in an effect similar to the "information super" (Zettl, 1961). For all programs, the presenter was positioned in front of an evenly lighted flat white screen so that the image of the presenter, with the keying technique, could cut into the image of the telecine camera.

All visual images are briefly identified in parentheses next to the designated video shot. Visual images for treatments are identified by numbers and letters to designate the review units which appeared over the image described in parentheses after TC.

SCRIPT FORMS

The audio portion of all scripts was written to clearly designate the spoken word. Thus numbers and percentages such as 300,000 and 50% were spelled out to indicate they were to be read respectively as "three hundred thousand" and "fifty percent".

Both video and audio portions of all scripts were systematically changed to correspond to operational definitions of the different forms of the units considered as experimental treatments. Specific content and phraseology for video and audio portions were constant throughout review treatment programs. Program IV held constant for both production variable studies I and II, differed substantially from review treatment programs to the extent that review units present in the latter were absent in the former.

Although seven complete scripts were used in the actual production of the programs, only the script for program IV is presented in complete form. In the modified scripts presented in programs I, II, III, and Ia, IIa, IIIa, the video and audio portions which did not differ from program IV are designated by the term "same" under the appropriate portions. The minor video changes from program IV were made because of technical production requirements. These changes are specified in the modified scripts.

In describing review treatment placements, the abbreviations V.O., COMB. and SUPER refer respectively to voice-over, combination and superimposition production strategies. MR, SUM, and SR denote respectively Massed Review, Summary Review and Spaced Review.

PROGRAM IV : SIMPLE

	Video.	Audio.
1.	C1 (title) KEYED INTO TC (mountain forest)	
2.	VTR (boy walking through forest followed by scene of raging forest fire)	MUSIC Maybe you visited a forest this year, near your home or at a country place. MUSIC
3.	C2 TCU (screen) ZOOM OUT TO MS (presenter) KEYED INTO TC (crowded forest)	When forests are burned, everybody suffers. Forests are homes for thousands of animals and birds, plants and trees. And Canada's forests are important for her economy. In fact, the forest industry is the second most important industry in Canada, after tourism. Even tourism is somewhat dependent on forests. The forest industry also employs over three hundred thousand people. And twenty percent of Canada's total exports are forest products. Canada is, in fact, a nation of forests.
4.	C3 MS (presenter) SLOW ZOOM IN TO	Although it's hard to believe when you live in the city, about fifty percent of Canada's land mass is covered by forests. And many things you use every day like papers and pencils, come from trees.
5.	CU (presenter)	So when forests are burned, plants and animals lose their homes, people lose places for recreation, and Canada's economy loses valuable income. Such losses occur every year when six to eight thousand forest fires burn more than two million acres of forests. That's a yearly loss of ten percent of the area the forest industry uses to

	Video.	Audio.
		make forest products. It's also a yearly loss of over eighteen million dollars worth of trees.
6.	C2 MS (presenter) KEYED INTO TC (fire)	And forest fires also destroy property, damage the soil, and kill and injure wildlife--which is also a loss to trappers. When a severe fire occurs the forest soil can be so damaged that it may be generations before it can again support a productive forest.
7.	C2 MS (presenter) KEYED INTO TC (fire)	A severe fire can completely change the character and economy of a region in which it occurs. There are three general types of forest fires: the ground fire, the surface fire, and the crown fire.
8.	C3 (graphic, ground fire)	The ground fire usually smoulders beneath the surface of the forest where it burns deeply in thick deposits of moss, peat, decomposed leaves and other debris. A ground fire can even survive an entire winter under the snow and break out in the spring.
9.	C1 (graphic, surface fire)	The surface fire is the most common type of forest fire. It starts on the surface of the forest floor where it feeds on dead leaves, branches and other vegetation. The fire can burn on the chips caused by saws, chips known as logging slash, in areas where lumber men have been at work, or on tree stumps and fallen trees.
10.	C3 MS (presenter)	The crown fire is the most dangerous and destructive partly because it usually occurs in dense dry forests when there's a strong wind.
11.	C1 (graphic, crown fire)	It's so intense and spreads so rapidly that it doesn't stay on the surface but reaches up to the tops or crowns of the trees. The fire then feeds on the branches and leaves of the living trees causing

	Video.	Audio.
		more fire and destruction than if it had stayed on the forest floor. The heat and updraft produced by a crown fire are tremendous so that flying embers are often carried by the wind to start new fires far away from the main one.
12.	C3 MS (presenter) ZOOM IN TO CU (presenter)	Although the first two types of fires can be put out, nothing can be done to the crown fire except to let it burn itself out and to make sure it doesn't spread.
13.	C3 CU (presenter)	You may be surprised to learn that over seventy-five percent of forest fires are started by people.
14.	C1 (graphic, carelessness)	The vast majority, about thirty-four percent of this seventy-five percent, are caused by the carelessness of people using the forest for recreation: campers, hunters, fishermen, hikers, and other casual forest visitors.
15.	C2 MS (presenter) KEYED INTO TC (fire in forest)	Their weapons are simple and known to everyone--a carelessly discarded cigarette or match or a campfire that hasn't been properly extinguished.
16.	C2 MS (presenter) KEYED INTO TC (fire)	But a few are set on purpose for wilful destruction. Still others are accidentally set by railroads and forest industries in the normal course of their work.
17.	C3 CU (presenter)	And Canada spends over eighteen million dollars a year to prevent or put out forest fires. Much money is spent on equipment such as look-out towers, bulldozers, and water-bombing airplanes, and thousands of men risk their lives fighting forest fires.

	Video.	Audio.
18.	C1 (graphic, Smokey the bear)	But the most effective way of fighting fires is to prevent them from happening in the first place because forest fires can be dangerous and destructive.
19.	C3 CU (presenter)	If you don't know how of if you don't remember how to prevent forest fires, then you can learn.
20.	C2 MS (presenter) KEYED INTO TC (burned forest)	And it's important. Next year the forest you visited this year may not be there.
21.	C3 MS (presenter)	But not all forest fires are bad. In fact, some fires are beneficial for plants, animals, and people. Some smaller ones are necessary for the inhabitants of the forest. Nature has a way of making all the natural elements of a forest work
	ZOOM IN TO CU (presenter)	together for the benefit of the forest. And fire is one of the natural elements of a forest. Twenty-five percent of all the forest fires in Canada are caused naturally; that is, they are <u>not</u> caused by man.
22.	C1 (graphic, lightning)	Most of these natural fires are caused by lightning--fires which usually occur before and after a rainstorm when the ground is still wet.
23.	C3 MS (presenter)	These fires are usually surface fires which aren't severe and don't spread rapidly.
24.	C3 MS (presenter)	When can nature live with fires? The only way to answer this question is to consider the nature and structure of a dense forest.
25.	C1 (graphic, dense forest)	As the years pass, a great deal of clutter gathers on the forest floor. First there's what's known as dead-fall. This is the litter caused by dead leaves, branches, plants and trees. Then there's underbrush caused by the growth of small plants,

	Video.	Audio.
		ferns, and even tiny trees. When this deadfall and underbrush go unchecked, a number of things begin to happen.
26.	C3 CU (presenter)	First the underbrush competes for nourishment from the soil with the big trees. As a result the big trees are weakened and much more likely to burn. Also numerous
27.	C2 MS (presenter) KEYED INTO TC (bark beetle)	insects, such as the bark beetle, attack the big trees, weakening them further. The weakened trees are then easily burned. Moreover the dense deadfall and underbrush serve as fuel to the fire. The fire then spreads and reaches the tops of the trees.
28.	C1 (graphic, dead forest)	The result of a fire in such a dense forest can be total destruction. The litter,the underbrush, and the trees are all destroyed. The forest is dead.
29.	C3 (graphic, nondense forest)	But in a forest that's been regularly burned by small lightning fires, the litter doesn't accumulate as much, the underbrush doesn't grow as much, and the big trees are strong because there's less competition for nourishment from the soil, and because the small fires have killed off attacking insects. The small fires instead of killing off everything, have just cleared off excessive growth and deadfall.
30.	C2 MS (presenter) KEYED INTO TC (small ground fire)	Thus, if a fire starts in this type of forest, it tends to stay near the surface.
31.	C2 MS (presenter) KEYED INTO TC (small ground fire)	In fact in many ways the forest plant and animal life may be healthier because of the small fire.
32.	C3 MS (presenter)	Studies have shown, for example, that the mineral content of the soil--so important for the growth of plants and trees--actually increases

	Video.	Audio.
		after a small fire.
33.	C2 MS (presenter) KEYED INTO TC (forest and sunlight)	Small fires clear open spaces, and small fires clear off litter from the forest floor.
34.	C3 MS (presenter)	If a forest's too dense animals can't forage through the forest to find food or a place to stay.
35.	C2 MS (presenter) KEYED INTO TC (deer)	One study showed, that there were two and a half times more deer in an area that had been burned than in a neighbouring area that had gone unchecked by fire.
36.	C3 MS (presenter)	And game birds, such as partridges or quail aren't able to find food in the forest when the litter's deeper than six inches. Water birds such as ducks living on the lakes also need cleared areas in the forest shoreline to nest and feed in,
37.	C2 MS (presenter) KEYED INTO TC (birds on shore)	a fact supported by another study which found over three times as many birds living in a burned area than in an area that hadn't been burned.
38.	C3 CU (presenter)	As you can see then, not all forest fires are bad. Some are essential for a forest to flourish. It's important to remember that fires are just as much a part of nature as man. Both have the potential for hurting and for helping the forests.
39.	C2 MS (presenter) KEYED INTO TC (forest)	It's usually the responsibility of forest rangers to put out fires for the benefit of forests and people. But sometimes, they actually start them, for the same reason.
40.	C2 MS (presenter) KEYED INTO TC (forest)	The earliest inhabitants of our country started and used fires for a variety of reasons. They used

	Video.	Audio.
		them for hunting and to improve grazing lands for their cattle. They burned small areas of forests to clear areas for building their homes and to make fields for planting their crops.
41.	C3 MS (presenter)	But the most important use of fire by early man was crop cultivation. They used ashes from the fires as fertilizer for their fields, and they used fire to eliminate weeds
	ZOOM IN TO	and other plant species that competed against the crops they wanted to cultivate.
	CU (presenter)	For example, the Indians knew that the easiest way to promote the flowering of chia, a favourite seed producing plant, was to set fire to the fields in which the plants grew. This stimulated the growth of the plant and eliminated competition from other less desirable plants.
42.	C2 MS (presenter) KEYED INTO TC (jungle forest)	Because early man's home was in or near the forest, he became an important part of the forest life. He understood and loved the forest and never caused unnecessary destruction. To severely burn the forest would have been like burning his source of food. So, when early man set fires, he was careful to keep them small and under control.
43.	C3 CU (presenter)	Nowadays, we're beginning to follow the experience of the Indians. We know that the forest's an important natural resource and that it should be protected. At the same time, we're finding that fires can be beneficial to man, to forests, and generally to nature.

	Video.	Audio.
44.	C2 MS (presenter) KEYED INTO TC (man and drip torch)	Controlled burning is the name of the process forest rangers use to deliberately plan and set fires in a controlled area. A controlled burn's started only under the proper conditions. First the area to be burned should be damp as it is after a recent rain. The burn should never be started when the forest's dry.
45.	C3 MS (presenter)	Second, the wind should be very calm since high winds tend to spread a fire. And, finally the burn should be started in the late afternoon because nightfall brings coolness, dew and ideal fire spotting conditions.
46.	C3 MS (presenter)	Although formerly, controlled burns were started by simply using matches or rakes with burning embers, the most modern method is to use the drip torch.
47.	C1 (graphic, man and drip torch)	
48.	C1 (graphic, man and drip torch)	The drip torch is a can with a long spout, containing a mixture of gasoline and fuel oil. The oil sticks to the vegetation and makes the burning more effective.
49.	C3 CU (presenter)	The techniques of controlled burning vary according to the nature of the land.
50.	C1 (graphic, valley fire)	To burn a canyon or valley, it's best to start from the top and work down. If a fire were started at the bottom, the whole side would burn very quickly because fire causes upward winds--upward winds which could fan the fire over the rim and out of control. By working from the top down, only a small part of the area is burned at a time.
51.	C3 (graphic, mountain fire)	Hills and mountains should be burned in a downward direction for the same reasons, one horizontal belt at a time. For example, if

	Video.	Audio.
		two upper belts on a mountain are burned off, they can then act as barriers to a third fire started by a drip torch on the horizontal belt just below the first two.
52.	C1 (graphic, fire from natural boundary)	The most common and spectacular artificial or controlled burns begin from natural boundaries, such as roads, streams, or barren ground. Such fires merge to a common center, where powerful updrafts speed up the burning and form a towering mushroom cloud of smoke--a fire that may be out within an hour.
53.	C3 (graphic, open area fire)	The cooler, snowy forested regions act as natural boundaries--as natural firestops. Later, when the forests are free of snow, they can be burned. So the open spaces also take their turn in halting the fire's spread.
54.	C2 MS (presenter) KEYED INTO TC (forest and litter)	Why do forest rangers use controlled burning? Often to imitate nature, to do the job that nature sometimes forgets to do.
55.	C2 MS (presenter) KEYED INTO TC (forest and litter)	Controlled burning can prevent large build-ups of deadfall and underbrush, can clear areas for birds and animals to live and find food in, and can increase the mineral content of the soil.
56.	C3 CU (presenter)	What's the advantage of controlled burning? It's simply that it's controllable. Experts can choose the proper weather and soil conditions and can restrict the burning to a pre-defined area; they can keep the fire from burning out of control.
57.	C2 MS (presenter) ZOOM IN TO TCU (screen) KEYED INTO TC (forest)	Controlled burning is the most effective method man has yet devised for keeping fires in harmony with the balance of nature.

	Video.	Audio.
58.	VTR (boy walking through forest)	MUSIC
59.	C1 (production credit) KEYED INTO TC (forest and sunlight)	

REVIEW TREATMENT PROGRAMS - PRODUCTION VARIABLE STUDY I

PROGRAM I: SUPER - V.O. - COMB.

	Video.	Audio.
1.	Same	Same
2.	Same	Same
3.	Same	Same
4.	Same	Same
T1.	C1 (graphic 1) KEYED INTO TC (crowded forest)	
5.	Same	Same
T2.	C1 (graphic 2) KEYED INTO TC (fire)	
6.	TC (fire)	Same
7.	Same	Same
8.	Same	Same
9.	Same	Same
10.	Same	Same
11.	Same	Same
12.	C3 CU (presenter)	Same
T3.	C1 (graphic 3) KEYED INTO TC (fire)	
13.	Same	Same
14.	Same	Same
15.	C1 (graphic, carelessness)	Same

	Video.	Audio.
16.	C3 CU (presenter)	Same
T4.	C1 (graphic 4) KEYED INTO TC (fire in forest)	
17.	Same	Same
18.	Same	Same
19.	Same	Same
20.	C3 CU (presenter)	Same
T5.	C1 (graphic 5) KEYED INTO TC (burned forest)	
21.	Same	Same
22.	Same	Same
23.	C1 (graphic, lightning)	Same
T6.	TC (dense forest)	Twenty-five percent of all forest fires are started by lightning. Lightning fires usually occur during the presence of rain. Lightning fires are usually surface fires which do little damage.
24.	C2 CU (presenter)	Same
25.	Same	Same
26.	Same	Same
27.	Same	Same
28.	Same	Same
T7.	TC (burned forest)	Deadfall and underbrush serve as fuel for fires.

	Video.	Audio.
		Underbrush robs large trees of nourishment. Insects attack and weaken large trees.
29.	Same	Same
30.	TC (small ground fire)	Same
T8.	TC (small ground fire)	Litter and underbrush accumulate less in a regularly burned forest. Insects that attack trees are killed off in a regularly burned forest. Large trees are strengthened in a regularly burned forest.
31.	C3 MS (presenter)	Same
32.	C3 MS (presenter)	Same
33.	TC (forest and sunlight)	Same
T9.	TC (forest and sunlight)	The mineral content of the soil increases after small fires. Small fires create open spaces. Small fires clear off litter from the surface floor.
34.	Same	Same
35.	Same	Same
36.	Same	Same
37.	TC (birds on shore)	Same
T10.	TC (birds on shore)	Two and a half times as many deer live in a regularly burned area. Game birds are unable to find food when litter is deeper than six inches. Three times as many birds live in a regularly burned area.

	Video.	Audio.
38.	Same	Same
39.	Same	Same
40.	C3 MS (presenter)	Same
T11.	C1 (graphic 11) KEYED INTO TC (mountain forest)	Early man used fires to clear lands for hunting and grazing. Early man used fires to clear areas for home building. Early man used fires to create fields for planting.
41.	Same	Same
T12.	C1 (graphic 12) KEYED INTO TC (ground smoke)	Ashes from fire served as fertilizer. Fire eliminated weeds and competing plants. Fire promoted the flowering of chia, a seed producing plant.
42.	TC (jungle forest)	Same
43.	Same	Same
44.	Same	Same
45.	Same	Same
T13.	C1 (graphic 13) KEYED INTO TC (man and drip torch)	The area should be damp when starting a controlled burn. For controlled burning the wind should be calm. The burn should be started in the late afternoon.
46.	Same	Same
47.	C3 MS (presenter)	Same
48.	Same	Same
49.	Same	Same
50.	Same	Same

	Video.	Audio.
51.	Same	Same
52.	Same	Same
53.	Same	Same
T14.	C1 (graphic 14) KEYED INTO TC (forest and litter)	Valleys and hills are burned from the top down. Open areas are burned from natural boundaries such as roads and streams. The drip torch method, using a mixture of gas and oil which sticks to vegetation, makes burning more effective.
54.	TC (forest and litter)	Same
55.	C3 CU (presenter)	Same
T15.	C1 (graphic 15) KEYED INTO TC (forest)	Controlled burning restricts build up of deadfall and underbrush. Controlled burning clears areas for birds and animals to live in. Controlled burning increases the mineral content of the soil.
56.	Same	Same
57.	Same	Same
58.	Same	Same
59.	Same	Same

PROGRAM II: V.O. - COMB. - SUPER

	Video.	Audio.
1.	Same	Same
2.	Same	Same
3.	Same	Same
4.	Same	Same
T1.	TC (crowded forest)	The forest industry employs over three hundred thousand people. Twenty percent of Canada's exports are forest products. Fifty percent of Canada's land mass is covered by forests.
5.	Same	Same
T2.	TC (fire)	There are six to eight thousand forest fires yearly in Canada. Forest fires burn more than two million acres or ten percent of all productive land. Over eighteen million dollars worth of trees are lost yearly through forest fires.
6.	TC (fire)	Same
7.	Same	Same
8.	Same	Same
9.	Same	Same
10.	Same	Same
11.	Same	Same
12.	C3 CU (presenter)	Same
T3.	TC (fire)	A ground fire smoulders and burns beneath the surface.

	Video.	Audio.
		A surface fire starts and burns on the surface. A crown fire spreads from the surface to tree tops.
13.	Same	Same
14.	Same	Same
15.	C1 (graphic, carelessness)	Same
16.	C3 CU (presenter)	Same
T4.	TC (fire in forest)	Over seventy-five percent of all forest fires are started by man. Thirty-four percent of man caused fires result from carelessness. Some man caused fires result from railway and forest industry accidents; others are set for wilful destruction.
17.	Same	Same
18.	Same	Same
19.	Same	Same
20.	C3 CU (presenter)	Same
T5.	TC (burned forest)	Canada spends over eighteen million dollars a year to fight fires. Money is spent on lookout towers, bulldozers, and water bombing. Prevention is the most effective method of fighting fires.
21.	Same	Same
22.	Same	Same

	Video.	Audio.
23.	C1 (graphic, lightning)	Same
T6.	C3 (graphic 6 KEYED INTO TC (dense forest)	Twenty-five percent of all forest fires are started by lightning. Lightning fires usually occur during the presence of rain. Lightning fires are usually surface fires which do little damage.
24.	C2 CU (presenter)	Same
25.	Same	Same
26.	Same	Same
27.	Same	Same
28.	Same	Same
T7.	C1 (graphic 7) KEYED INTO TC (burned forest)	Deadfall and underbrush serve as fuel for fires. Underbrush robs large trees of nourishment. Insects attack and weaken large trees.
29.	Same	Same
30.	TC (small ground fire)	Same
T8.	C1 (graphic 8) KEYED INTO TC (small ground fire)	Litter and underbrush accumulate less in a regularly burned forest. Insects that attack trees are killed off in a regularly burned forest. Large trees are strengthened in a regularly burned forest.
31.	C3 MS (presenter)	Same
32.	C3 MS (presenter)	Same

	Video.	Audio.
33.	TC (forest and light)	Same
T9.	C1 (graphic 9) KEYED INTO TC (forest and sun-light)	The mineral content of the soil increases after small fires. Small fires create open spaces. Small fires clear off litter from the surface.
34.	Same	Same
35.	Same	Same
36.	Same	Same
37.	TC (birds on shore)	Same
T10.	C1 (graphic 10) KEYED INTO TC (birds on shore)	Two and a half times as many deer live in a regularly burned area. Game birds are unable to find food when litter is deeper than six inches. Three times as many birds live in a regularly burned area.
38.	Same	Same
39.	Same	Same
40.	C3 MS (presenter)	Same
T11.	C1 (graphic 11) KEYED INTO TC (mountain forest)	
41.	Same	Same
T12.	C1 (graphic 12) KEYED INTO TC (ground smoke)	
42.	TC (jungle forest)	Same
43.	Same	Same
44.	Same	Same

	Video.	Audio.
45.	Same	Same
T13.	C1 (graphic 13) KEYED INTO TC (man and drip torch)	
46.	Same	Same
47.	C3 MS (presenter)	Same
48.	Same	Same
49.	Same	Same
50.	Same	Same
51.	Same	Same
52.	Same	Same
53.	Same	Same
T14.	C1 (graphic 14) KEYED INTO TC (forest and litter)	
54.	TC (forest and litter)	Same
55.	C3 CU (presenter)	Same
T15.	C1 (graphic 15) KEYED INTO TC (forest)	
56.	Same	Same
57.	Same	Same
58.	Same	Same
59.	Same	Same

PROGRAM III: COMB. - SUPER - V.O.

	Video.	Audio.
1.	Same	Same
2.	Same	Same
3.	Same	Same
4.	Same	Same
T1.	C1 (graphic 1) KEYED INTO TC (crowded forest)	The forest industry employs over three hundred thousand people. Twenty percent of Canada's exports are forest products. Fifty percent of Canada's land mass is covered by forests.
5.	Same	Same
T2.	C1 (graphic 2) KEYED INTO TC (fire)	There are six to eight thousand forest fires yearly in Canada. Forest fires burn more than two million acres or ten percent of all productive land. Over eighteen million dollars worth of trees are lost yearly through forest fires.
6.	TC (fire)	Same
7.	Same	Same
8.	Same	Same
9.	Same	Same
10.	Same	Same
11.	Same	Same
12.	C3 CU (presenter)	Same

	Video.	Audio.
T3.	C1 (graphic 3) KEYED INTO TC (fire)	A ground fire smoulders and burns beneath the surface. A surface fire starts and burns on the surface. A crown fire spreads from the surface to tree tops.
13.	Same	Same
14.	Same	Same
15.	C1 (graphic, carelessness)	Same
16.	C3 CU (presenter)	Same
T4.	C1 (graphic 4) KEYED INTO TC (fire in forest)	Over seventy-five percent of all forest fires are started by man. Thirty-four percent of man caused fires result from carelessness. Some man caused fires result from railway and forest industry accidents. Others are set for wilful destruction.
17.	Same	Same
18.	Same	Same
19.	Same	Same
20.	C3 CU (presenter)	Same
T5.	C1 (graphic 5) KEYED INTO TC (burned forest)	Canada spends over eighteen million dollars a year to fight fires. Money is spent on lookout towers, bulldozers, and water bombing. Prevention is the most effective method of fighting fires.
21.	Same	Same

	Video.	Audio.
22.	Same	Same
23.	C1 (graphic, lightning)	Same
T6.	C3 (graphic 6) KEYED INTO TC (dense forest)	
24.	C2 CU (presenter)	Same
25.	Same	Same
26.	Same	Same
27.	Same	Same
28.	Same	Same
T7.	C1 (graphic 7) KEYED INTO TC (burned forest)	
29.	Same	Same
30.	TC (small ground fire)	Same
T8.	C1 (graphic 8) KEYED INTO TC (small ground fire)	
31.	C3 MS (presenter)	Same
32.	C3 MS (presenter)	Same
33.	TC (forest and sun-light)	Same
T9.	C1 (graphic 9) KEYED INTO TC (forest and sun-light)	
34.	Same	Same

	Video.	Audio.
35.	Same	Same
36.	Same	Same
37.	TC (birds on shore)	Same
T10.	C1 (graphic 10) KEYED INTO TC (birds on shore)	
38.	Same	Same
39.	Same	Same
40.	C3 MS (presenter	Same
T11.	TC (mountain forest)	Early man used fires to clear lands for hunting and grazing. Early man used fires to clear areas for home building. Early man used fires to create fields for planting.
41.	Same	Same
T12.	TC (ground smoke)	Ashes from fire served as fertilizer. Fire eliminated weeds and competing plants. Fire promoted the flowering of chia, a seed producing plants.
42.	TC (jungle forest)	Same
43.	Same	Same
44.	Same	Same
45.	Same	Same
T13.	TC (man and drip torch)	When starting a controlled burn, the area should be damp. For controlled burning the wind should be calm. A controlled burn should be started in the late afternoon.

	Video.	Audio.
46.	Same	Same
47.	C3 MS (presenter)	Same
48.	Same	Same
49.	Same	Same
50.	Same	Same
51.	Same	Same
52.	Same	Same
53.	Same	Same
T14.	TC (forest and litter)	Valleys and hills are burned from the top down. Open areas are burned from natural boundaries such as roads and streams. The drip torch method, using a mixture of gas and oil which sticks to vegetation, makes burning more effective.
54.	TC (forest and litter)	Same
55.	C3 CU (presenter)	Same
T15.	TC (forest)	Controlled burning restricts build up of deadfall and under-brush. Controlled burning clears areas for birds and animals to live in. Controlled burning increases the mineral content of the soil.
56.	Same	Same
57.	Same	Same
58.	Same	Same
59.	Same	Same

REVIEW TREATMENT PROGRAMS - PRODUCTION VARIABLE STUDY II

PROGRAM Ia: MR-SUM-SR

	Video.	Audio.
1.	Same	Same
2.	Same	Same
3.	Same	Same
4.	Same	Same
T1.	C1 (graphic, MR1) KEYED INTO TC (crowded forest)	The forest industry employs over three hundred thousand people. Twenty percent of Canada's exports are forest products. Fifty percent of Canada's land mass is covered by forests.
5.	Same	Same
T2.	C1 (graphic, MR2) KEYED INTO TC (burned forest)	There are six to eight thousand forest fires yearly in Canada. Forest fires burn more than two million acres or ten percent of all productive land. Over eighteen million dollars worth of trees are lost yearly through forest fires.
6.	TC (burned forest)	Same
7.	Same	Same
8.	Same	Same
9.	Same	Same
10.	Same	Same
11.	Same	Same
12.	C3 CU (presenter)	Same

	Video.	Audio.
T3.	C1 (graphic, MR3) KEYED INTO TC (burned forest)	A ground fire smoulders and burns beneath the surface. A surface fire starts and burns on the surface. A crown fire spreads from the surface to tree tops.
13.	Same	Same
14.	Same	Same
15.	C1 (graphic, carelessness)	Same
16.	C3 CU (presenter)	Same
T4.	C1 (graphic, MR4)	Over seventy-five percent of all forest fires are started by man. thirty-four percent of man caused fires result from carelessness. Some man caused fires result from railway and forest industry accidents; others are set for wilful destruction.
17.	Same	Same
18.	Same	Same
19.	Same	Same
20.	C3 CU (presenter)	Same
T5.	C1 (graphic, MR5) KEYED INTO TC (burned forest)	Canada spends over eighteen million dollars a year to fight fires. Money is spent on lookout towers, bulldozers, and water bombing. Prevention is the most effective method of fighting fires.
21.	Same	Same
22.	Same	Same
23.	C1 (graphic, lightning)	Same
24.	C2 CU (presenter)	Same
25.	Same	Same
26.	Same	Same

	Video.	Audio.
27.	Same	Same
28.	Same	Same
29.	Same	Same
30.	Same	Same
31.	C3 MS (presenter)	Same
32	C3 MS (presenter)	Same
33.	TC (forest and sunlight)	Same
34.	Same	Same
35.	Same	Same
36.	Same	Same
37.	TC (birds on shore)	Same
T6.	C1 (graphic, SUM6) KEYED INTO TC (forest)	Twenty-five percent of all forest fires are started by lightning. Lightning fires usually occur during the presence of rain. Lightning fires are usually surface fires which do little damage.
T7.	C3 (graphic, SUM7) KEYED INTO TC (forest)	Deadfall and underbrush serve as fuel for fires. Underbrush robs large trees of nourishment. Insects attack and weaken large trees.
T8.	C1 (graphic, SUM8) KEYED INTO TC (forest)	Litter and underbrush accumulate less in a regularly burned forest. Insects that attack trees are killed off in a regularly burned forest. Large trees are strengthened in a regularly burned forest.
T9.	C3 (graphic, SUM9) KEYED INTO TC (forest)	The mineral content of the soil increases after small fires. Small fires create open spaces. Small fires clear off litter from the surface floor.

	Video.	Audio.
T10.	C1 (graphic, SUM10) KEYED INTO TC (forest)	Two and a half times as many deer live in a regularly burned area. Game birds are unable to find food when litter is deeper than six inches. Three times as many birds live in a regularly burned area.
38.	Same	Same
39.	Same	Same
40.	C3 MS (presenter)	Same
T11a.	C1 (graphic, SR11a) KEYED INTO TC (jungle forest)	Early man used fires to clear lands for hunting and grazing.
T11b.	TC (jungle forest)	PAUSE FOR SEVEN SECONDS
T11c.	C3 (graphic, SR11b) KEYED INTO TC (jungle forest)	Early man used fires to clear areas for home building.
T11d.	TC (jungle forest)	PAUSE FOR SEVEN SECONDS
T11e.	C1 (graphic, SR11c) KEYED INTO TC (jungle forest)	Early man used fires to create fields for planting.
41.	Same	Same
T12a.	C1 (graphic, SR12a) KEYED INTO TC (jungle forest)	Ashes from fire served as fertilizer.
T12b.	TC (jungle forest)	PAUSE FOR SEVEN SECONDS
T12c.	C3 (graphic, SR12b) KEYED INTO TC (jungle forest)	Fire eliminated weeds and competing plants.
T12d.	TC (jungle forest)	PAUSE FOR SEVEN SECONDS
T12e.	C1 (graphic, SR12c) KEYED INTO TC (jungle forest)	Fire promoted the flowering of chia a seed producing plant.
42.	TC (jungle forest)	Same
43.	Same	Same

	Video.	Audio.
44.	Same	Same
45.	Same	Same
T13a.	C1 (graphic, SR13a) KEYED INTO TC (forest)	The area should be damp when starting a controlled burn.
T13b.	TC (forest)	PAUSE FOR SEVEN SECONDS
T13c.	C3 (graphic, SR13b) KEYED INTO TC (forest)	For controlled burning the wind should be calm.
T13d.	TC (forest)	PAUSE FOR SEVEN SECONDS
T13e.	C1 (graphic, SR13c) KEYED INTO TC (forest)	The burn should be started in the late afternoon.
46.	Same	Same
47.	C3 MS (presenter)	Same
48.	Same	Same
49.	Same	Same
50.	Same	Same
51.	Same	Same
52.	Same	Same
53.	Same	Same
T14a.	C1 (graphic, SR14a) KEYED INTO TC (forest and litter)	Valleys and hills are burned from the top down.
T14b.	TC (forest and litter)	PAUSE FOR SEVEN SECONDS
T14c.	C3 (graphic, SR14b) KEYED INTO TC (forest and litter)	Open areas are burned from natural boundaries such as roads and streams
T14d.	TC (forest and litter)	PAUSE FOR SEVEN SECONDS
T14e.	C1 (graphic, SR14c) KEYED INTO TC (forest and litter)	The drip torch method, using a mixture of gas and oil which sticks to vegetation, makes burning more effective.

	Video.	Audio.
54.	TC (forest and litter)	Same
55.	C3 CU (presenter)	Same
T15a.	C1 (graphic, SR15a) KEYED INTO TC (dark forest)	Controlled burning restricts build up of deadfall and underbrush.
T15b.	TC (dark forest)	PAUSE FOR SEVEN SECONDS
T15c.	C3 (graphic, SR15b) KEYED INTO TC (dark forest)	Controlled burning clears areas for birds and animals to live in.
T15d.	TC (dark forest)	PAUSE FOR SEVEN SECONDS
T15e.	C1 (graphic, SR15c) KEYED INTO TC (dark forest)	Controlled burning increases the mineral content of the soil.
56.	Same	Same
57.	Same	Same
58.	Same	Same
59.	Same	Same

PROGRAM IIa: SUM-SR-MR

	Video.	Audio.
1.	Same	Same
2.	Same	Same
3.	Same	Same
4.	Same	Same
5.	Same	Same
6.	TC (burned forest)	Same
7.	Same	Same
8.	Same	Same

	Video.	Audio.
9.	Same	Same
10.	Same	Same
11.	Same	Same
12.	C3 CU (presenter)	Same
13.	Same	Same
14.	Same	Same
15.	C1 (graphic, carelessness)	Same
16.	C3 CU (presenter)	Same
17.	Same	Same
18.	Same	Same
19.	Same	Same
20.	C3 CU (presenter)	Same
T1.	C1 (graphic, SUM1) KEYED INTO TC (burned forest)	The forest industry employs over three hundred thousand people. Twenty percent of Canada's exports are forest products. Fifty percent of Canada's land mass is covered by forests.
T2.	C3 (graphic, SUM2) KEYED INTO TC (burned forest)	There are six to eight thousand forest fires yearly in Canada. Forest fires burn more than two million acres or ten percent of all productive land. Over eighteen million dollars worth of trees are lost yearly through forest fires.
T3.	C1 (graphic, SUM3) KEYED INTO TC (burned forest)	A ground fire smoulders and burns beneath the surface. A surface fire starts and burns on the surface. A crown fire spreads from the surface to tree tops.
T4.	C3 (graphic, SUM4) KEYED INTO TC (burned forest)	Over seventy-five percent of all forest fires are started by man. Thirty-four percent of man caused

	Video.	Audio.
		fires result from carlessness. Some man caused fires result from railway and forest industry accidents; others are set for wilful destruction.
T5.	C1 (graphic, SUM5) KEYED INTO TC (burned forest)	Canada spends over eighteen million dollars a year to fight fires. Money is spent on lookout towers, bulldozers, and water bombing. Prevention is the most effective method of fighting fires.
21.	Same	Same
22.	Same	Same
23.	C1 (graphic, lightning)	Same
T6a.	C3 (graphic, SR6a) KEYED INTO TC (forest)	Twenty-five percent of all forest fires are started by lightning.
T6b.	TC (forest)	PAUSE FOR SEVEN SECONDS
T6c.	C1 (graphic, SR6b) KEYED INTO TC (forest)	Lightning fires usually occur during the presence of rain.
T6d.	TC (forest)	PAUSE FOR SEVEN SECONDS
T6e.	C3 (graphic, SR6c) KEYED INTO TC (forest)	Lightning fires are usually surface fires which do little damage.
24.	C2 CU (presenter)	Same
25.	Same	Same
26.	Same	Same
27.	Same	Same
28.	Same	Same
T7a.	C1 (graphic, SR7a) KEYED INTO TC (forest and litter)	Deadfall and underbrush serve as fuel for fires.

	Video.	Audio.
T7b.	TC (forest and litter)	PAUSE FOR SEVEN SECONDS
T7c.	C3 (graphic, SR7b) KEYED INTO TC (forest and litter)	Underbrush robs large trees of nourishment
T7d.	TC (forest and litter)	PAUSE FOR SEVEN SECONDS
T7e.	C1 (graphic, SR7c) KEYED INTO TC (forest and litter)	Insects attack and weaken large trees.
29.	Same	Same
30.	Same	Same
T8a.	C1 (graphic, SR8a) KEYED INTO TC (forest and sunlight)	Litter and underbrush accumulate less in a regularly burned forest.
T8b.	TC (forest and sunlight)	PAUSE FOR SEVEN SECONDS
T8c.	C3 (graphic, SR8b) KEYED INTO TC (forest and sunlight)	Insects that attack trees are killed off in a regularly burned forest.
T8d.	TC (forest and sunlight)	PAUSE FOR SEVEN SECONDS
T8e.	C1 (graphic, SR8c) KEYED INTO TC (forest and sunlight)	Large trees are strengthened in a regularly burned forest.
31.	C3 MS (presenter)	Same
32.	C3 MS (presenter)	Same
33.	TC (forest and sunlight)	Same
T9a.	C1 (graphic, SR9a) KEYED INTO TC (forest and sunlight)	The mineral content of the soil increases after small fires.
T9b.	TC (forest and sunlight)	PAUSE FOR SEVEN SECONDS
T9c.	C3 (graphic, SR9b) KEYED INTO TC (forest and sunlight)	Small fires create open spaces.
T9d.	TC (forest and sunlight)	PAUSE FOR SEVEN SECONDS

	Video.	Audio.
T9e.	C1 (graphic, SR9c) KEYED INTO TC (forest and sunlight)	Small fires clear off litter from the surface floor.
34.	Same	Same
35.	Same	Same
36.	Same	Same
37.	TC (birds on shore)	Same
T10a.	C1 (graphic, SR10a) KEYED INTO TC (birds on shore)	Two and a half times as many deer live in a regularly burned area.
T10b.	TC (birds on shore)	PAUSE FOR SEVEN SECONDS
T10c.	C3 (graphic, SR10b) KEYED INTO TC (birds on shore)	Game birds are unable to find when litter is deeper than six inches.
T10d.	TC (birds on shore)	PAUSE FOR SEVEN SECONDS
T10e.	C1 (graphic, SR10c) KEYED INTO TC (birds on shore)	Three times as many birds live in a regularly burned area.
38.	Same	Same
39.	Same	Same
40.	C3 MS (presenter)	Same
T11.	C1 (graphic, MR11) KEYED INTO TC (jungle forest)	Early man used fires to clear land for hunting and grazing. Early man used fires to clear areas for home building. Early man used fires to create fields for planting.
41.	Same	Same
T12.	C1 (graphic, MR12) KEYED INTO TC (jungle forest)	Ashes from fire served as fertilizer. Fire eliminated weeds and competing plants. Fire promoted the flowering of chia, a seed producing plant.
42.	TC (jungle forest)	Same

	Video.	Audio.
43.	Same	Same
44.	Same	Same
45.	Same	Same
T13.	C1 (graphic, MR13) KEYED INTO TC (forest)	The area should be damp when starting a controlled burn. For controlled burning the wind should be calm. The burn should be started in the late afternoon.
46.	Same	Same
47.	C3 MS (presenter)	Same
48.	Same	Same
49.	Same	Same
50.	Same	Same
51.	Same	Same
52.	Same	Same
53.	Same	Same
T14.	C1 (graphic, MR14) KEYED INTO TC (forest and litter)	Valleys and hills are burned from the top down. Open areas are burned from natural boundaries such as roads and streams. The drip torch method, using a mixture of gas and oil which sticks to vegetation, makes burning more effective.
54.	TC (forest and litter)	Same
55.	C3 CU (presenter)	Same
T15.	C1 (graphic, MR15) KEYED INTO TC (dark forest)	Controlled burning restricts build up of deadfall and underbrush. Controlled burning clears areas for birds and animals to live in. Controlled burning increases the mineral content of the soil.
56.	Same	Same
57.	Same	Same

	Video.	Audio.
58.	Same	Same
59.	Same	Same

PROGRAM IIIa: SR - MR - SUM

	Video.	Audio.
1.	Same	Same
2.	Same	Same
3.	Same	Same
4.	Same	Same
T1a.	C1 (graphic, SR1a) KEYED INTO TC (crowded forest)	The forest industry employs over three hundred thousand people.
T1b.	TC (crowded forest)	PAUSE FOR SEVEN SECONDS
T1c.	C3 (graphic, SR1b) KEYED INTO TC (crowded forest)	Twenty percent of Canada's exports are forest products.
T1d.	TC (crowded forest)	PAUSE FOR SEVEN SECONDS
T1e.	C1 (graphic, SR1c) KEYED INTO TC (crowded forest)	Fifty percent of Canada's land mass is covered by forests.
5.	Same	Same
T2a.	C1 (graphic, SR2a) KEYED INTO TC (burned forest)	There are six to eight thousand forest fires yearly in Canada.
T2b.	TC (burned forest)	PAUSE FOR SEVEN SECONDS
T2c.	C3 (graphic, SR2b) KEYED INTO TC (burned forest)	Forest fires burn more than two million acres or ten percent of all productive land.
T2d.	TC (burned forest)	PAUSE FOR SEVEN SECONDS

	Video.	Audio.
T2e.	C1 (graphic, SR2c) KEYED INTO TC (burned forest)	Over eighteen million dollars worth of trees are lost yearly through forest fires.
6.	TC (burned forest)	Same
7.	Same	Same
8.	Same	Same
9.	Same	Same
10.	Same	Same
11.	Same	Same
12.	C3 CU (presenter)	Same
T3a.	C1 (graphic, SR3a) KEYED INTO TC (burned forest)	A ground fire smoulders and burns beneath the surface.
T3b.	TC (burned forest)	PAUSE FOR SEVEN SECONDS
T3c.	C3 (graphic, SR3b) KEYED INTO TC (burned forest)	A surface fire starts and burns on the surface.
T3d.	TC (burned forest)	PAUSE FOR SEVEN SECONDS
T3e.	C1 (graphic, SR3c) KEYED INTO TC (burned forest)	A crown fire spreads from the surface to tree tops.
13.	Same	Same
14.	Same	Same
15.	C1 (graphic, carelessness)	Same
16.	C3 CU (presenter)	Same
T4a.	C1 (graphic, SR4a) KEYED INTO TC (burned forest)	Over seventy-five percent of all forest fires are started by man.
T4b.	TC (burned forest)	PAUSE FOR SEVEN SECONDS

	Video.	Audio.
T4c.	C3 (graphic, SR4b) KEYED INTO TC (burned forest)	Thirty-four percent of man caused fires result from carelessness.
T4d.	TC (burned forest)	PAUSE FOR SEVEN SECONDS
T4e.	C1 (graphic, SR4c) KEYED INTO TC (burned forest)	Some man caused fires result from railway and forest industry accidents; others are set for wilful destruction.
17.	Same	Same
18.	Same	Same
19.	Same	Same
20.	C3 CU (presenter)	Same
T5a.	C1 (graphic, SR5a) KEYED INTO TC (burned forest)	Canada spends over eighteen million dollars a year to fight fires.
T5b.	TC (burned forest)	PAUSE FOR SEVEN SECONDS
T5c.	C3 (graphic, SR5b) KEYED INTO TC (burned forest)	Money is spent on lookout towers, bulldozers, and water bombing.
T5d.	TC (burned forest)	PAUSE FOR SEVEN SECONDS.
T5e.	C1 (graphic, SR5c) KEYED INTO TC (burned forest)	Prevention is the most effective method of fighting fires.
21.	Same	Same
22.	Same	Same
23.	C1 (graphic, lighting)	Same
T6.	C3 (graphic, MR6) KEYED INTO TC (forest)	Twenty-five percent of all forest fires are started by lightning. Lightning fires usually occur during the presence of rain. Lightning fires are usually surface fires which do little damage.

	Video.	Audio.
24.	C2 CU (presenter)	Same
25.	Same	Same
26.	Same	Same
27.	Same	Same
28.	Same	Same
T7.	C1 (graphic, MR7) KEYED INTO TC (forest and litter)	Deadfall and underbrush serve as fuel for fires. Underbrush robs large trees of nourishment. Insects attack and weaken large trees.
29.	Same	Same
30.	Same	Same
T8.	C1 (graphic, MR8) KEYED INTO TC (forest and sunlight)	Litter and underbrush accumulate less in a regularly burned forest. Insects that attack trees are killed off in a regularly burned forest. Large trees are strenghened in a regularly burned forest.
31.	C3 MS (presenter)	Same
32.	C3 MS (presenter)	Same
33.	TC (forest and sunlight)	Same
T9.	C1 (graphic, MR9) KEYED INTO TC TC (forest with light)	The mineral content of the soil increases after small fires. Small fires create open spaces. Small fires clear off litter from the surface floor.
34.	Same	Same
35.	Same	Same
36.	Same	Same
37.	Same	Same

	Video.	Audio.
37.	TC (birds on shore)	Same
T10.	C1 (graphic, MR10) KEYED INTO TC (birds on shore)	Two and a half times as many deer live in a regularly burned area. Game birds are unable to find food when litter is deeper than six inches. Three times as many birds live in a regularly burned area.
38.	Same	Same
39.	Same	Same
40.	C4 MS (presenter)	Same
41.	Same	Same
42.	TC (jungle forest)	Same
43.	Same	Same
44.	Same	Same
45.	Same	Same
46.	Same	Same
47.	C3 MS (presenter)	Same
48.	Same	Same
49.	Same	Same
50.	Same	Same
51.	Same	Same
52.	Same	Same
53.	Same	Same
54.	TC (forest and litter)	Same
55.	C3 CU (presenter)	Same
T11.	C1 (graphic, SUM11) KEYED INTO TC (forest and sunlight)	Early man used fires to clear lands for hunting and grazing. Early man used fires to clear areas for home building. Early man used fires to create fields for planting.

	Video.	Audio.
T12.	C3 (graphic, SUM12) KEYED INTO TC (forest and sunlight)	Ashes from fire served as fertilizer. Fire eliminated weeds and competing plants. Fire promoted the flowering of chia, a seed producing plant.
T13.	C1 (graphic, SUM13) KEYED INTO TC (forest and sunlight)	The area should be damp when starting a controlled burn. For controlled burning the wind should be calm. The burn should be started in the late afternoon.
T14.	C3 (graphic, SUM14) KEYED INTO TC (forest and sunlight)	Valleys and hills are burned from the top down. Open areas are burned from natural boundaries such as roads and streams. The drip torch method, using a mixture of gas and oil which sticks to vegetation, makes burning more effective.
T15.	C1 (graphic, SUM15) KEYED INTO TC (forest	Controlled burning restricts build up of deadfall and underbrush. Controlled burning clears areas for birds and animals to live in. Controlled burning increases the mineral content of the soil.
56.	Same	Same
57.	Same	Same
58.	Same	Same
59.	Same	Same

APPENDIX B

PROGRAM SCRIPTS - PRESENTER VARIABLE STUDIES I AND II

PROGRAM SCRIPTS - PRESENTER VARIABLE STUDIES I AND II

BASIC DESIGN

Although three programs were produced to investigate the presenter variable, both audio and video portions (exclusive of presenter changes) were constant. Camera shots and audio content did not vary from one program to the next, rather the image of the presenter changed. In accord with a pre-set system of rotation, all presenters were male and were matched for similar voice characteristics.

The basic script is divided into three main sections with three corresponding messages as capsulized below. These main sections were preceded by an introductory segment, e.g., shot numbers 1 and 2, and were followed by a concluding segment, e.g., shot numbers 16 and 17. Transitions between the main sections were accomplished by inserting video tape segments of forest scenes relating primarily to the content of the section following the insert.

Section	Message
FIRST PRESENTER	Forest fires damage and destroy forest life.
SECOND PRESENTER	Lightning fires often benefit a forest.
THIRD PRESENTER	Controlled burning promotes healthy forest growth.

The system of rotation of presenters across the three main sections from one program to the next was designed as follows:

	PROGRAM I	PROGRAM II	PROGRAM III
FIRST PRESENTER	Young Hip	Young Straight	Mature Straight
SECOND PRESENTER	Young Straight	Mature Straight	Young Hip
THIRD PRESENTER	Mature Straight	Young Hip	Young Straight

SCRIPT SYMBOLS AND ABBREVIATIONS

Video shots are sequentially numbered and are placed flush with the left margin and level with the corresponding audio segment. Camera numbers are designated by the letter "C" followed by an arabic numeral, e.g., C3 designates camera number three. Conventional symbols were used to designate framing shots: MS for a medium shot, CU for a close-up, TCU for a tight close-up. The letters "TC" are an abbreviation for "telecine" and designate a switch to a slide or film segment. The letters "VTR" designate a switch to a video tape recording. The term "KEYED INTO" as it appears in the scripts is used to designate a special electronic effect which causes the image of one camera to cut into the image of another. Each presenter was positioned in front of an evenly lit flat white screen, but with application of the keying technique, the image of the presenter cut into the image of the telecine camera. The presenter's background then could be a forest fire, a dense forest, a group of deer, or whatever was considered appropriate for a given audio segment. All visual images are briefly identified in parentheses following the designated video shot; the presenter images are not identified as they changed on the basis of rotation described above.

INTRODUCTION TO PROGRAM

Video	Audio
1. C1 (title, "Forests and Fires") KEYED INTO TC (mountain forest)	

Video	Audio
2. TR (boy walking through forest followed by some of raging forest fire)	MUSIC IN BACKGROUND (FEMALE VOICE) Maybe you visited a forest this year, near your home or at a country place. MUSIC Today we have three people to talk to you about forests and fires.

SECTION I: FIRST PRESENTER

Video	Audio
3. C2 TCU (screen) ZOOM OUT TO MS (presenter) KEYED INTO TC (crowded forest)	When forests are burned, everybody suffers. Forests are homes for thousands of animals and birds, plants and trees. And Canada's forests are important for her economy. In fact, the forest industry is the second most important industry in Canada, after tourism. Even tourism is somewhat dependent on forests. The forest industry also employs over three hundred thousand people. And twenty percent of Canada's total exports are forest products. Canada is, in fact. a nation of forests.
4. C3 MS SLOW ZOOM IN TO CU (presenter)	Although it's hard to believe when you live in the city, about fifty percent of Canada's land mass is covered by forests. And many things you use everyday like papers and pencils, come from trees. So when forests are burned, plants and animals lose their homes, people lose places for recreation, and Canada's economy loses valuable income. Such losses occur every year when six to eight thousand forest fires burn more than two million acres of forests. That's a yearly loss of ten percent of the area the forest industry uses to make forest products. It's also a yearly loss of over eighteen million dollars worth of trees.
5. C2 MS (presenter) KEYED INTO TC (fire)	And forest fires also destroy property, damage the soil, and kill and injure wildlife -- which is also a loss to trappers. When a severe fire occurs the forest soil can be so damaged that it may

	Video	Audio
		be generations before it can again support a productive forest. A severe fire can completely change the character and economy of a region in which it occurs. There are three general types of forest fires. The first type is the ground fire.
6.	C3 (graphic, ground fire)	It usually smoulders beneath the surface of the forest where it burns deeply in thick deposits of moss, peat, decomposed leaves and other debris. A ground fire can even survive an entire winter under the snow and break out in the spring.
7.	C1 (graphic, surface fire)	The second type is the surface fire, the most common type of forest fire. It starts on the surface of the forest floor where it feeds on dead leaves, branches and other vegetation. The fire can burn on the chips caused by saws, chips known as logging slash, in areas where lumbermen have been at work, or on tree stumps and fallen trees.
8.	C3 MS (presenter)	The third type is the crown fire. This is the most dangerous and destructive partly because it usually occurs in dense dry forests when there's a strong wind.
9.	C1 (graphic, crown fire)	It's so intense and spreads so rapidly that it doesn't stay on the surface but reaches up to the tops or crowns of the trees. The fire then feeds on the branches and leaves of the living trees causing more fire and destruction than if it had stayed on the forest floor. The heat and updraft produced by a crown fire are tremendous so that flying embers are often carried by the wind to start new fires far away from the main one.
10.	C3 MS (presenter) ZOOM IN TO CU (presenter)	Although the first two types of fires can be put out, nothing can be done to the crown fire except to let it burn itself out and to make sure it doesn't spread. But how do fires start? Well, over seventy-five percent are started by people. A few are set on purpose for wilful destruction. Still others are accidentally set by

	Video	Audio
		railroads and forest industries in the normal course of their work.
11.	C1 (graphic, carelessness)	But the vast majority, about thirty-four percent, are caused by the carelessness of people using the forest for recreation: campers, hunters, fishermen, hikers, and other casual forest visitors.
12.	C2 MS (presenter) KEYED INTO TC (forest)	Their weapons are simple and known to every one -- a carelessly discarded cigarette or match or a campfire that hasn't been properly extinguished. Canada spends over eighteen million dollars a year to prevent or put out all these fires. Much money is spent on equipment such as look-out towers, bull-dozers, and water-bombing airplanes, and thousands of men risk their lives fighting forest fires. But the most effective way of fighting fires is to prevent them from happening in the first place. This is done by closing off forests which are very dry or by posting fire danger ratings.
13.	C3 CU (presenter)	Perhaps you've seen these signs as you have driven in the country. Education helps. It's one important way to prevent fires caused by human carelessness.
14.	C1 (graphic, Smokey the bear)	All of you should be able to recognize Smokey the bear as a symbol of forest fire prevention. If you know how to prevent fires in a forest, then perhaps it's because of this education program in the schools, in youth groups such as the boy scouts, and on TV.
15.	C3 CU (presenter)	If you don't know how or if you don't remember how to prevent forest fires, then you can learn.
16.	C2 MS (presenter) ZOOM IN TO TCU (screen) KEYED INTO TC (burned forest)	And it's important. Next year the forest you visited this year may not be there.

TRANSITION TO SECTION II

Video	Audio
17. VTR (clouds, wind, rain in forest)	

SECTION II: SECOND PRESENTER

Video	Audio
18. C2 TCU (screen) ZOOM OUT TO MS (presenter) KEYED INTO TC (forest)	There's no doubt that forest fires are dangerous and destructive, but this doesn't mean that all forest fires are bad. For example, if a fire were to occur in the presence of rain, it would probably do very little damage.
19. C3 MS (presenter) SLOW ZOOM IN TO CU (presenter)	In fact, some fires are beneficial for plants, animals and people. Thus, when fires do <u>not</u> occur, the result is sometimes worse than if they did. I'm not talking about very severe fires that destroy everything in their path. Not all fires are as big and destructive as these. Some smaller ones are necessary for the inhabitants of the forest. Nature has a way of making all the natural elements of a forest work together for the benefit of the entire forest. And fire is one of the natural elements of a forest.
20. C1 (graphic, lightning)	Twenty-five percent of all the forest fires in Canada are caused naturally; that is they are <u>not</u> caused by man. Most of these natural fires are caused by lightning -- fires which usually occur before and after a rainstorm when the ground is still wet.
21. C3 MS (presenter)	These fires aren't severe and don't spread rapidly. In the course of time, nature has learned to live with mild natural fires and has used them to benefit forests. How does nature do this? Let's start to answer this question by considering the nature and structure of a dense forest.

	Video	Audio
22.	C1 (graphic, dense forest)	As the years pass, a great deal of clutter gathers on the forest floor. First there's what's known as deadfall. This is the litter caused by dead leaves, branches, plants and trees. Then there's underbrush caused by the growth of small plants, ferns, and even tiny trees. When this deadfall and underbrush go unchecked, a number of things begin to happen.
23.	C3 CU (presenter)	First the underbrush competes for nourishment from the soil with the big trees. As a result the big trees are weakened and much more likely to burn.
24.	C2 MS (presenter) KEYED INTO TC (bark beetle)	Also numerous insects, such as the bark beetle, attack the big trees, weakening them further. The weakened trees are then easily burned. Moreover the dense deadfall and underbrush serve as fuel to the fire. The fire then spreads and reaches the tops of the trees.
25.	C1 (graphic, dead forest)	The result of a fire in such a dense forest can be total destruction. The litter, the underbrush, and the trees are all destroyed. The forest is dead. The forest may never be able to return to its former state.
26.	C3 (graphic, non-dense forest)	But in a forest that's been regularly burned by small lightning fires, the litter doesn't accumulate as much, the underbrush doesn't grow as much, and the big trees are strong because there's less competition for nourishment from the soil, and because the small fires have killed off attacking insects. The small fires instead of killing off everything, have just cleared off excessive growth and deadfall.
27.	C2 MS (presenter) KEYED INTO TC (small surface fire)	Thus, if a fire starts in this type of forest, it tends to stay near the surface. The trees aren't damaged in a forest regularly cleared by lightning fires.

	Video	Audio
28.	C1 (graphic, non-dense forest after surface fire)	The trees are still alive. The forest's a healthy one. And the underbrush can grow again because the soil hasn't been destroyed either. In fact, in many ways the forest may be healthier because of the small fire.
29.	C3 MS (presenter)	Studies have shown, for example, that the mineral content of the soil -- so important for the growth of plants and trees -- actually increases after a small fire. When there's been no fire for a long time, small plants, such as the blueberry bush fail to grow as well. Animals also need occasional forest burns to clear open spaces for them to live in. If a forest's too dense, such animals can't forage through the forest to find food or a place to stay. One study showed, for example,
30.	C2 MS (presenter) KEYED INTO TC (deer)	that there were about two and a half times more deer in an area that had just been burned than in a neighbouring area that had gone unchecked by fire.
31.	C3 CU (presenter)	And game birds, such as partridges or quail aren't able to find food in the forest when the litter's deeper than six inches. So they too need small fires to clear the litter. Water birds such as ducks living on the lakes also need cleared areas in the forest shoreline to nest and feed in. If the shoreline doesn't burn off occasionally, it often becomes too thick and tangled for the birds,
32.	C2 MS (presenter) KEYED INTO TC (birds on shore)	a fact supported by another study which found over three times as many birds living in a burned area than in an area that hadn't been burned.
33.	C3 CU (presenter)	As you can see then, not all forest fires are bad. Some are essential for a forest to flourish. It's important to remember that fires are just as much a part of nature as man is.

	Video	Audio
34.	C2 MS (presenter) ZOOM IN TO TCU (screen) KEYED INTO TC (forest)	Both have the potential for hurting and for helping the forests.

TRANSITION TO SECTION III

	Video	Audio
35.	VTR (men putting out fire)	

SECTION III: THIRD PRESENTER

	Video	Audio
36.	C2 TCU (screen) ZOOM OUT TO MS (presenter) KEYED INTO TC (forest)	It's usually the responsibility of forest rangers to put out fires for the benefit of forests and people. But sometimes, they actually start them, for the same reason.
37.	C3 MS (presenter) SLOW ZOOM IN TO CU (presenter)	The earliest inhabitants of our country started and used fires for a variety of reasons. They used them for hunting and to improve grazing lands for their cattle. They burned small areas of forests to make fields for planting their crops and cleared areas for building their homes. They knew that ashes from the fires could be used as fertilizer for their fields, and they knew that fire could eliminate weeds and other plant species that competed against the crops they wanted to cultivate. For example, the Indians knew that the easiest way to promote the flowering of chia, a favourite seed-producing plant, was to set fire to the fields in which the plant grew. This stimulated the growth of the plant and eliminated competition from other less desirable plants. The Indians even found food by using fire

	Video	Audio
		as when they burned off the grasses around oak trees to find acorns.
38.	C2 MS (presenter) KEYED INTO TC(forest)	Because early man's home was in or near the forest, he became an important part of the forest life. He understood and loved the forest and never caused unnecessary destruction. To severely burn the forest would have been like burning his source of food. So, when early man set fires, he was careful to keep them small and under control.
39.	C3 CU (presenter)	Nowadays, we're beginning to follow the experience of the Indians. We know that the forest is an important natural resource and that it should be protected. At the same time, we're finding that fires can be beneficial to man, to forests, and generally to nature. Controlled burning is the name of the process forest rangers use to deliberately plan and set fires in a controlled area. Although formerly, controlled burns were started by simply using matches or rakes with burning embers,
40.	C1 (graphic, man and drip torch)	the most modern method is to use the drip torch. The drip torch is a can with a long spout, containing a mixture of gasoline and fuel oil. The oil sticks to the vegetation and makes the burning more effective.
41.	C2 MS (presenter) KEYED INTO TC (man and drip torch)	A controlled burn's started only under the proper conditions. First the area to be burned should be damp as it is after a recent rain.
42.	C3 MS (presenter)	The burn should never be started when the forest's dry. Second, the wind should be very calm since high winds tend to spread a fire. And, finally the burn should be started in the late afternoon because nightfall brings coolness, dew and ideal fire spotting conditions. The techniques of controlled burning vary according to the nature of the land.

	Video	Audio
43.	C1 (graphic, valley fire)	To burn a canyon or valley, it's best to start from the top and work down. If a fire were started at the bottom, the whole side would burn very quickly because fire causes upward winds -- upward winds which could fan the fire over the rim and out of control. By working from the top down, only a small part of the area is burned at a time.
44.	C3 (graphic, mountain fire)	Hills and mountains should be burned in a downward direction for the same reasons, one horizontal belt at a time. For example, if two upper belts on a mountain are burned off, they can then act as barriers to a third fire started by a drip torch on the horizontal belt just below the first two. Rangers can also communicate with each other from one belt or area to another by walkie talkies and in this way, keep each other alert on the progress of the fire.
45.	C1 (graphic, fire fire from natural boundary)	The most common and spectacular artificial or controlled burns begin from natural boundaries, such as roads, streams, or barren ground. Such fires merge to a common center, where powerfull updrafts speed up the burning and form a towering mushroom cloud of smoke -- a fire that may be out within an hour.
46.	C3 (graphic, open area fire)	Open areas where the snow has melted can be safely burned in early spring before ducks and grouse begin to nest. The cooler, snowy forested regions act as natural boundaries -- as natural firestops. Later, when the forests are free of snow, they can be burned. So the open spaces also take their turn in halting the fire's spread.
47.	C2 MS (presenter) KEYED INTO TC Forest)	Why do forest rangers use controlled burning? Often, to imitate nature, to do the job that nature sometimes forgets to do. Controlled burning can prevent large build ups of deadfall and underbrush, can clear areas for birds and animals to live and find food in, and can increase the mineral content of the soil.

Video	Audio
48. C3 (presenter)	And controlled burning is sometimes a necessity, as when an area goes without small lightning fires for a very long time. What's the advantage of controlled burning? It's simply that it's controllable. Experts can choose the proper weather and soil conditions and can restrict the burning to a predefined area; they can keep the fire from burning out of control.
49. C2 MS (presenter) SOOM IN TO TCU (screen) KEYED INTO TC (forest)	Controlled burning is the most effective method man has yet devised for keeping fires in harmony with the balance of nature.

CONCLUSION TO PROGRAM

Video	Audio
50. VTR (boy walking through forest)	MUSIC
51. C1 (graphic, "A Communications Canada Production") KEYED INTO TC (mountain forest)	

APPENDIX C

QUESTIONNAIRES - PRODUCTION VARIABLE STUDIES I AND II

PART 1

INSTRUCTIONS : In the following pages of this section, we would like your opinions on statements dealing with forests and fires. There are no right or wrong answers to these statements. We simply want to know what you think about these statements.

For each statement there are five possible choices that you can make. The choices are as follows:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5

: _____ : _____ : _____ : _____ : _____ :

For each statement given, place a check in the position that best describes how you feel about that statement.

EXAMPLE: ALL MEN ARE CREATED EQUAL.

If you strongly agree with this statement, you would place your check as follows:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5

: _____ : _____ : _____ : _____ : ✓ :

If you strongly disagree with this statement, you would place your check as follows:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5

: ✓ : _____ : _____ : _____ : _____ :

If you agree but don't feel strongly toward the statement, you would place your check under AGREE.

If you disagree but don't feel strongly against the statement, you would place your check under DISAGREE.

If you neither agree nor disagree with the statement, you would place your check under NEUTRAL.

BE SURE TO PLACE A CHECK IN THE RATING SCALE FOR EACH STATEMENT.

PLEASE RATE EACH OF THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE 1	DISAGREE 2	NEUTRAL 3	AGREE 4	STRONGLY AGREE 5
1. Lightning fires are dangerous to normal forest life.					
2. Forest rangers should always try to put out all forest fires.					
3. Fire is not a natural element of forest life.					
4. Shorelines on rivers and streams should not be regularly burned.					
5. People should be allowed to smoke and start camp fires in the forest.					
6. Forest fires started on purpose and kept under control are harmful to forest growth.					
7. Campaigns against carelessness are not the most effective way to prevent forest fires.					
8. Fire should not be used to prevent forest fires.					
9. A dense forest is a healthy forest.					
10 All forest fires should be prevented.					
11. Less money should be spent in fighting forest fires.					
12. Quebec should not be divided into areas where forest fires can be set and kept under control on a regular basis.					
13. Less money should be spent to educate people about how to prevent forest fires.					
14. Forest fire was one of the greatest enemies to early man.					
15. All small forest fires are harmful to tree growth.					

PART II

INSTRUCTIONS: Each of the incomplete statements or questions below is followed by several possible answers.

In the space provided, put a check next to the answer you think is most correct.

EXAMPLE:

The population of Canada is slightly greater than _____

_____ a. 14 million people

_____ b. 18 million people

__✓__ c. 22 million people

_____ d. 26 million people

PLEASE ANSWER THE FOLLOWING ITEMS:

1. What percentage of Canada's exports are forest products?

_____ a. 20 percent

_____ b. 40 percent

_____ c. 60 percent

_____ d. 80 percent

2. What percentage of Canada is covered by forests?

_____ a. 20 percent

_____ b. 35 percent

_____ c. 50 percent

_____ d. 65 percent

3. What are the three main types of forest fires?

_____ a. ground, surface and controlled

_____ b. surface, controlled and crown

_____ c. ground, surface and crown

_____ d. ground, crown and controlled

4. How many people are employed by the forest industry in Canada?

_____ a. 100 thousand

_____ b. 200 thousand

_____ c. 300 thousand

_____ d. 400 thousand

5. What percentage of productive land is destroyed by forest fires in Canada each year?

_____ a. 10 percent

_____ b. 15 percent

_____ c. 20 percent

_____ d. 25 percent

6. What is the value of trees lost yearly through forest fires in Canada?

_____ a. 9 million dollars

_____ b. 12 million dollars

_____ c. 15 million dollars

_____ d. 18 million dollars

7. What percentage of man caused fires result from carelessness?

_____ a. 24 percent

_____ b. 34 percent

_____ c. 44 percent

_____ d. 54 percent

8. How much money does Canada spend each year to fight forest fires?

_____ a. 9 million dollars

_____ b. 12 million dollars

_____ c. 15 million dollars

_____ d. 18 million dollars

9. Lightning set forest fires often cause little damage because _____

_____ a. they usually occur in the presence of rain and remain on the surface

_____ b. they are started by lightning when the forest is damp

_____ c. they occur in non-dense forests when the wind is calm

_____ d. they usually start in dense forests when there is a light breeze

10. In a regularly burned forest, what happens to litter and underbrush?

_____ a. litter and underbrush accumulate more

_____ b. litter and underbrush accumulate less

_____ c. litter accumulates less but underbrush accumulates more

_____ d. litter accumulates more but underbrush accumulates less

11. In a regularly burned forest, what happens to large trees?

_____ a. they are weakened

_____ b. they are destroyed

_____ c. they are strengthened

_____ d. they are not affected

12. Why are forest fires beneficial to animals?

_____ a. they burn off branches which grow close to the ground

_____ b. they kill off attacking insects

_____ c. they keep the animal population under control

_____ d. they clear open spaces

13. In areas which have been burned, the deer population is likely to increase _____

_____ a. 2 1/2 times

_____ b. 4 1/2 times

_____ c. 6 1/2 times

_____ d. 8 1/2 times

14. Why do small fires help to prevent large forest fires?

_____ a. small fires alert forest rangers to potentially dangerous areas

_____ b. small fires increase the moisture content of the soil

_____ c. small fires serve as a warning to forest visitors

_____ d. small fires clear off underbrush and deadfall

15. How does a small forest fire benefit water birds such as ducks?

_____ a. it kills off natural enemies of water birds

_____ b. it prevents soil erosion from occuring on the shoreline

_____ c. it clears off the shoreline for water birds to nest in

_____ d. it leaves small branches and twigs which are used by water birds to build nests

16. Lightning fires are usually what type of fire?

_____ a. ground fire

_____ b. surface fire

_____ c. crown fire

_____ d. controlled burn

17. What wind conditions are necessary for starting a controlled burn?

_____ a. gusty winds blowing in the direction of the area to be burned

_____ b. updrafts for burning a limited area at a time

_____ c. wind conditions are not important

_____ d. a calm wind or no wind

18. What is controlled burning?

_____ a. a process used by experts to plan and start a fire in a controlled area under proper weather and soil conditions

_____ b. a process used by experts to plan and start a fire in any area under any weather and soil conditions

_____ c. a process used by experts to plan and start a fire in a controlled area

_____ d. a process used by experts to plan and start an uncontrolled fire in an open area

19. Why is the oil and gasoline drip torch a good method for starting controlled burning?

_____ a. oil is the most economical fire starter

_____ b. oil causes the least smoke in controlled burning

_____ c. oil from the drip torch sticks to vegetation and causes ignition

_____ d. oil causes the least damage to healthy trees

20. What is the best time of day to start a controlled burn?

_____ a. early morning

_____ b. mid-day

_____ c. late afternoon

_____ d. night

21. What is the most common type of fire used by modern man in controlled burning?

_____ a. a crown fire

_____ b. a ground fire

_____ c. a surface fire

_____ d. a lightning fire

22. Why does modern man use fires for controlled burning?

_____ a. to promote the flowering of chia

_____ b. to destroy the bark beetle

_____ c. to clear areas so that new trees can be planted

_____ d. to clear off underbrush and deadfall

23. In what way has fire not been used for crop cultivation?

_____ a. harvesting the crops

_____ b. fertilizing fields with ashes from fires

_____ c. eliminating weeds and undesirable plants

_____ d. promoting the flowering of chia

24. Which of the following is <u>not</u> a tool for starting a controlled burn?

_____ a. lightning

_____ b. matches

_____ c. rakes with burning embers

_____ d. drip torch

In British Columbia during September, 1973, a purposely set fire was whipped out of control and raced through a nearby neighbourhood where it destroyed at least 30 homes. The area the fire was started in was timber dry. It had rained less than five days in the last two months before the fire was started. The fire began in a controlled slash burning program being carried out by the provincial forestry department. The slash was branches and chips left after the trees had been cut. The winds that sprang up sent the flames racing through the timber and past the fire lines. The fire became so intense that fire fighters were unable to control it. The destruction of those areas that had been burned was total.

25. What is a controlled slash burn?

____ a. a burn designed to clear off the dense underbrush in a forest

____ b. a burn designed to create fertilizing for the mineral content of the soil

____ c. a burn designed to stay near the surface so that harmful insects are killed

____ d. a burn designed to clear off the branches and chips caused by logging operations

26. Could the destruction caused by this fire have been avoided?

_____ a. Yes. because controlled burns should only be started in early spring when the snow has melted

_____ b. Yes, because the controlled burn should not have been started when the forest was dry

_____ c. No, because all controlled burns cause some destruction to nearby areas

_____ d. No, because only valleys and hills can be burned without causing some destruction to nearby areas

27. What type of fire do you think it was?

_____ a. a surface fire

_____ b. a crown fire

_____ c. a ground fire

_____ d. a lightning fire

PART III

PLEASE RATE EACH OF THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE 1	DISAGREE 2	NEUTRAL 3	AGREE 4	STRONGLY AGREE 5
1. Lightning fires are safe for normal forest life.					
2. Forest rangers should not always try to put out all forest fires.					
3. Fire is a natural element of forest life.					
4. Shorelines on rivers and streams should be regularly burned.					
5. People should not be allowed to smoke and start camp fires in the forest.					
6. Forest fires started on purpose and kept under control are beneficial to forest growth.					
7. Campaigns against carelessness are the most effective way to prevent forest fires.					
8. Fire should be used to prevent forest fires.					
9. A dense forest is not a healthy forest.					
10. Not all forest fires should be prevented.					
11. More money should be spent in fighting forest fires.					
12. Quebec should be divided into areas where forest fires can be set and kept under control on a regular basis.					
13. More money should be spent to educate people about how to prevent forest fires.					
14. Forest fire was one of the greatest friends to early man.					
15. All small forest fires are beneficial to tree growth.					

HOW OLD ARE YOU? _____

WHAT GRADE ARE YOU IN? _____

SEX? _____ MALE

_____ FEMALE

WHAT IS YOUR FATHER'S OCCUPATION OR THE OCCUPATION OF THE HEAD OF YOUR HOUSEHOLD?

_____

DO YOU HAVE A TELEVISION SET IN YOUR HOME?

NO _____

YES _____ BLACK & WHITE? _____

COLOUR? _____

THE END

APPENDIX D

QUESTIONNAIRES - PRESENTER VARIABLE STUDIES I AND II

The initial two pages of Part II of the following questionnaire provides photographs of the presenters to ensure that scale ratings would not be subject to correct recall of presenters and the possibility of erroneous responses. The placement and identification of presenters are appropriate to program formats utilized in the studies. Examples of each of the questionnaire formats are included. With the exception of the two pages mentioned above, all portions of the questionnaire are common to all groups sampled.

PART 1

INSTRUCTIONS : In the following pages of this section, we would like your opinions on statements dealing with forests and fires. There are no right or wrong answers to these statements. We simply want to know what you think about these statements.

For each statement there are five possible choices that you can make. The choices are as follows:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5
:	:	:	:	:

For each statement given, place a check in the position that best describes how you feel about that statement.

EXAMPLE: ALL MEN ARE CREATED EQUAL.

If you strongly agree with this statement, you would place your check as follows:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5
:	:	:	:	✓ :

If you strongly disagree with this statement, you would place your check as follows:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5
✓ :	:	:	:	:

If you agree but don't feel strongly toward the statement, you would place your check under AGREE.

If you disagree but don't feel strongly against the statement, you would place your check under DISAGREE.

If you neither agree nor disagree with the statement, you would place your check under NEUTRAL.

BE SURE TO PLACE A CHECK IN THE RATING SCALE FOR EACH STATEMENT.

PLEASE RATE EACH OF THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE 1	DISAGREE 2	NEUTRAL 3	AGREE 4	STRONGLY AGREE 5
1. Lightning fires are dangerous to normal forest life.					
2. Forest rangers should always try to put out all forest fires.					
3. Fire is not a natural element of forest life.					
4. Shorelines on rivers and streams should not be regularly burned.					
5. People should be allowed to smoke and start camp fires in the forest.					
6. Forest fires started on purpose and kept under control are harmful to forest growth.					
7. Campaigns against carelessness are not the most effective way to prevent forest fires.					
8. Fire should not be used to prevent forest fires.					
9. A dense forest is a healthy forest.					
10 All forest fires should be prevented.					
11. Less money should be spent in fighting forest fires.					
12. Quebec should not be divided into areas where forest fires can be set and kept under control on a regular basis.					
13. Less money should be spent to educate people about how to prevent forest fires.					
14. Forest fire was one of the greatest enemies to early man.					
15. All small forest fires are harmful to tree growth.					

PART II

The television program that you have just seen was presented by three different people or presenters. A picture of each of these presenters is given below.

1st Presenter 2nd Presenter 3rd Presenter

Keeping each of the presenters in mind, please answer the following questions.

I. 1. How old do you think the 1st presenter is? _____

2. How old do you think the 2nd presenter is? _____

3. How old do you think the 3rd presenter is? _____

II. PLEASE READ THE FOLLOWING DEFINITIONS

COMMUNICATIVE is defined as .... the degree to which a presenter conveys information clearly (so that it is easily understood).

KNOWLEDGEABLE is defined as .... the degree to which a presenter is believed to be intelligent and well informed (in a subject area).

TRUSTWORTHY is defined as .... the degree to which a presenter is believed to be honest and sincere.

DYNAMIC is defined as .... the degree to which a presenter creates a strong impression.

Using the above definitions, we would like you to rate each of the presenters on the scales on the following page. Notice that each scale has four positions from, NOT VERY COMMUNICATIVE NOT VERY KNOWLEDGEABLE, Etc. to VERY COMMUNICATIVE, VERY KNOWLEGEABLE, Etc. Place a check (✔) in the position that best describes how you feel about each of the presenters abilities.

FOR EXAMPLE, if you feel that one of the presenters was NOT COMMUNICATIVE AT ALL during the program, you would place your check as follows:

NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
/ ✔ /	/	/	/

If you feel that a presenter was VERY COMMUNICATIVE, you would place your check as follows:

NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
/	/	/	/ ✔ /

ON THE FOLLOWING PAGE, PLACE A CHECK IN THE POSITION THAT BEST DESCRIBES HOW YOU FEEL ABOUT EACH OF THE PRESENTERS.

RATE EACH OF THE FOLLOWING SCALES

	NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

1st Presenter

	NOT KNOWLEDGEABLE AT ALL 1	NOT VERY KNOWLEDGEABLE 2	KNOWLEDGEABLE 3	VERY KNOWLEDGEABLE 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

2nd Presenter

	NOT TRUSTWORTHY AT ALL 1	NOT VERY TRUSTWORTHY 2	TRUSTWORTHY 3	VERY TRUSTWORTHY 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

3rd Presenter

	NOT DYNAMIC AT ALL 1	NOT VERY DYNAMIC 2	DYNAMIC 3	VERY DYNAMIC 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

PART II

The television program that you have just seen was presented by three different people or presenters. A picture of each of these presenters is given below.

1st Presenter 2nd Presenter 3rd Presenter

Keeping each of the presenters in mind, please answer the following questions.

I. 1. How old do you think the 1st presenter is? _____

2. How old do you think the 2nd presenter is? _____

3. How old do you think the 3rd presenter is? _____

II. PLEASE READ THE FOLLOWING DEFINITIONS

COMMUNICATIVE is defined as .... the degree to which a presenter conveys information clearly (so that it is easily understood).

KNOWLEDGEABLE is defined as .... the degree to which a presenter is believed to be intelligent and well informed (in a subject area).

TRUSTWORTHY is defined as .... the degree to which a presenter is believed to be honest and sincere.

DYNAMIC is defined as .... the degree to which a presenter creates a strong impression.

Using the above definitions, we would like you to rate each of the presenters on the scales on the following page. Notice that each scale has four positions from, NOT VERY COMMUNICATIVE NOT VERY KNOWLEDGEABLE, Etc. to VERY COMMUNICATIVE, VERY KNOWLEDGEABLE, Etc. Place a check (✓) in the position that best describes how you feel about each of the presenters abilities.

FOR EXAMPLE, if you feel that one of the presenters was NOT COMMUNICATIVE AT ALL during the program, you would place your check as follows:

NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
/ ✓ /	/	/	/

if you feel that a presenter was VERY COMMUNICATIVE, you would place your check as follows:

NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
/	/	/	/ ✓ /

ON THE FOLLOWING PAGE, PLACE A CHECK IN THE POSITION THAT BEST DESCRIBES HOW YOU FEEL ABOUT EACH OF THE PRESENTERS.

RATE EACH OF THE FOLLOWING SCALES

	NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

	NOT KNOWLEDGEABLE AT ALL 1	NOT VERY KNOWLEDGEABLE 2	KNOWLEDGEABLE 3	VERY KNOWLEDGEABLE 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

	NOT TRUSTWORTHY AT ALL 1	NOT VERY TRUSTWORTHY 2	TRUSTWORTHY 3	VERY TRUSTWORTHY 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

	NOT DYNAMIC AT ALL 1	NOT VERY DYNAMIC 2	DYNAMIC 3	VERY DYNAMIC 4
1st Presenter	/	/	/	/
2nd Presenter	/	/	/	/
3rd Presenter	/	/	/	/

1st Presenter

2nd Presenter

3rd Presenter

PART II

The television program that you have just seen was presented by three different people or presenters. A picture of each of these presenters is given below.

1st Presenter

2nd Presenter

3rd Presenter

Keeping each of the presenters in mind, please answer the following questions.

I. 1. How old do you think the 1st presenter is? _____

2. How old do you think the 2nd presenter is? _____

3. How old do you think the 3rd presenter is? _____

II. PLEASE READ THE FOLLOWING DEFINITIONS

COMMUNICATIVE is defined as .... the degree to which a presenter conveys information clearly (so that it is easily understood).

KNOWLEDGEABLE is defined as .... the degree to which a presenter is believed to be intelligent and well informed (in a subject area).

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DYNAMIC is defined as .... the degree to which a presenter creates a strong impression.

Using the above definitions, we would like you to rate each of the presenters on the scales on the following page. Notice that each scale has four positions from, NOT VERY COMMUNICATIVE NOT VERY KNOWLEDGEABLE, Etc. to VERY COMMUNICATIVE, VERY KNOWLEDGEABLE, Etc. Place a check (✓) in the position that best describes how you feel about each of the presenters abilities.

FOR EXAMPLE, if you feel that one of the presenters was NOT COMMUNICATIVE AT ALL during the program, you would place your check as follows:

NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
/ ✓ /	/	/	/

If you feel that a presenter was VERY COMMUNICATIVE, you would place your check as follows:

NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
/	/	/	/ ✓ /

ON THE FOLLOWING PAGE, PLACE A CHECK IN THE POSITION THAT BEST DESCRIBES HOW YOU FEEL ABOUT EACH OF THE PRESENTERS.

RATE EACH OF THE FOLLOWING SCALES

	NOT COMMUNICATIVE AT ALL 1	NOT VERY COMMUNICATIVE 2	COMMUNICATIVE 3	VERY COMMUNICATIVE 4
1st Presenter				
2nd Presenter				
3rd Presenter				

	NOT KNOWLEDGEABLE AT ALL 1	NOT VERY KNOWLEDGEABLE 2	KNOWLEDGEABLE 3	VERY KNOWLEDGEABLE 4
1st Presenter				
2nd Presenter				
3rd Presenter				

	NOT TRUSTWORTHY AT ALL 1	NOT VERY TRUSTWORTHY 2	TRUSTWORTHY 3	VERY TRUSTWORTHY 4
1st Presenter				
2nd Presenter				
3rd Presenter				

	NOT DYNAMIC AT ALL 1	NOT VERY DYNAMIC 2	DYNAMIC 3	VERY DYNAMIC 4
1st Presenter				
2nd Presenter				
3rd Presenter				

1st Presenter

2nd Presenter

3rd Presenter

III. PLEASE RATE EACH OF THE FOLLOWING STATEMENTS

	STRONGLY DISAGREE 1	DISAGREE 2	AGREE 3	STRONGLY AGREE 4
1. I feel that the 1st presenter is more likely to have the same beliefs, values and attitudes as I.				
2. I feel that the 2nd presenter is more likely to have the same beliefs, values and attitudes as I.				
3. I feel that the 3rd presenter is more likely to have the same beliefs, values and attitudes as I.				
4. If I were organizing a TV program to be shown to myself only, I would choose the 1st presenter to be on TV.				
5. If I were organizing a TV program to be shown to myself only, I would choose the 2nd presenter to be on TV.				
6. If I were organizing a TV program to be shown to myself only, I would choose the 3rd presenter to be on TV.				
7. If I were organizing a TV program to be shown to my classmates, I would choose the 1st presenter to be on TV.				
8. If I were organizing a TV program to be shown to my classmates, I would choose the 2nd presenter to be on TV.				
9. If I were organizing a TV program to be shown to my classmates, I would choose the 3rd presenter to be on TV.				
10. If I were organizing a TV program to be shown to all other English speaking people in Canada, I would choose the 1st presenter to be on TV.				
11. If I were organizing a TV program to be shown to all other English speaking people in Canada, I would choose the 2nd presenter to be on TV.				
12. If I were organizing a TV program to be shown to all other English speaking people in Canada, I would choose the 3rd presenter to be on TV.				

PART III

PLEASE RATE EACH OF THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE 1	DISAGREE 2	NEUTRAL 3	AGREE 4	STRONGLY AGREE 5
1. Lightning fires are safe for normal forest growth.					
2. Forest rangers should not always try to put out all forest fires.					
3. Fire is a natural element of forest life.					
4. Shorelines on rivers and streams should be regularly burned.					
5. People should not be allowed to smoke and start camp fires in the forest.					
6. Forest fires started on purpose and kept under control are beneficial to forest growth.					
7. Campaigns against carelessness are the most effective way to prevent forest fires.					
8. Fire should be used to prevent forest fires.					
9. A dense forest is not a healthy forest.					
10. Not all forest fires should be prevented.					
11. More money should be spent in fighting forest fires.					
12. Quebec should be divided into areas where forest fires can be set and kept under control on a regular basis.					
13. More money should be spent to educate people about how to prevent forest fires.					
14. Forest fire was one of the greatest friends to early man.					
15. All small forest fires are beneficial to tree growth.					

PART IV

INSTRUCTIONS: Each of the incomplete statements or questions below is followed by several possible answers.

In the space provided, put a check next to the answer you think is most correct.

EXAMPLE:

The population of Canada is slightly greater than _____

_____ a. 14 million people

_____ b. 18 million people

__✓__ c. 22 million people

_____ d. 26 million people

PLEASE ANSWER THE FOLLOWING ITEMS:

1. What percentage of Canada's exports are forest products?

_____ a. 20 percent

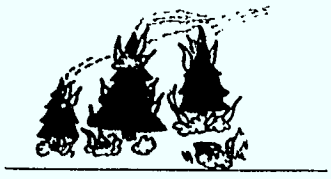
_____ b. 40 percent

_____ c. 60 percent

_____ d. 80 percent

2. Which of the following types of forest fires is the most harmful?

_____ a. _____ b. _____ c.



3. What percentage of productive land is destroyed by forest fires in Canada each year?

_____ a. 10 percent

_____ b. 15 percent

_____ c. 20 percent

_____ d. 25 percent

4. What percentage of man caused fires result from carelessness?

_____ a. 24 percent

_____ b. 34 percent

_____ c. 44 percent

_____ d. 54 percent

5. How much money does Canada spend each year to fight forest fires?

_____ a. 9 million dollars

_____ b. 12 million dollars

_____ c. 15 million dollars

_____ d. 18 million dollars

6. Lightning set forest fires often cause little damage because _____

_____ a. they usually occur in the presence of rain and remain on the surface

_____ b. they are started by lightning when the forest is damp

_____ c. they occur in non-dense forests when the wind is calm

_____ d. they usually start in dense forests when there is a light breeze

7. Why are forest fires beneficial to animals?

_____ a. they burn off branches which grow close to the ground

_____ b. they kill off attacking insects

_____ c. they keep the animal population under control

_____ d. they clear open spaces

8. In areas which have been burned, the deer population is likely to increase _____

_____ a. 2 1/2 times

_____ b. 4 1/2 times

_____ c. 6 1/2 times

_____ d. 8 1/2 times

9. Which of the areas below is least likely to burn out of control?

_____ a. _____ b. _____ c.

10. Lightning fires are usually what type of forest fire?

_____ a. ground fire

_____ b. surface fire

_____ c. crown fire

_____ d. controlled burn

11. What wind conditions are necessary for starting a controlled burn?

_____ a. gusty winds blowing in the direction of the area to be burned

_____ b. updrafts for burning a limited area at a time

_____ c. wind conditions are not important

_____ d. a calm wind or no wind at all

12. Why is the oil and gasoline drip torch a good method for starting controlled burning?

_____ a. oil is the most economical fire starter

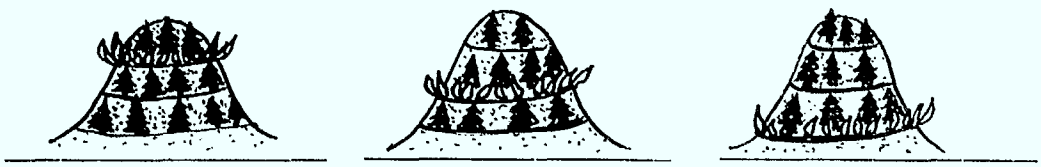
_____ b. oil causes the least smoke in controlled burning

_____ c. oil from the drip torch sticks to vegetation and increases ignition

_____ d. oil causes the least damage to healthy trees

13. Which of the following diagrams shows the best place to start a controlled burn on a hill?

_____ a. _____ b. _____ c.



14. What is the most common type of fire used by modern man in controlled burning?

_____ a. a crown fire

_____ b. a ground fire

_____ c. a surface fire

_____ d. a lightning fire

15. Where should a controlled burn be started in an open area?

_____ a. from the centre of the open area

_____ b. from the thickest part of the open area

_____ c. from any section in the area

_____ d. from natural boundaries such as streams

In British Columbia during September, 1973, a purposely set fire was whipped out of control and raced through a nearby neighbourhood where it destroyed at least 30 homes. The area the fire was started in was timber dry. It had rained less than five days in the last two months before the fire was started. The fire began in a controlled slash burning program being carried out by the provincial forestry department. The slash was branches and chips left after the trees had been cut. The winds that sprang up sent the flames racing through the timber and past the fire lines. The fire became so intense that fire fighters were unable to control it. The destruction of those areas that had been burned was total.

16. What is a controlled slash burn?

_____ a. a burn designed to clear off the dense underbrush in a forest

_____ b. a burn designed to create fertilizing for the mineral content of the soil

_____ c. a burn designed to stay near the surface so that harmful insects are killed

_____ d. a burn designed to clear off the branches and chips caused by logging operations

17. Could the destruction caused by this fire have been avoided?

_____ a. Yes, because controlled burns should only be started in the early spring when the snow has melted

_____ b. Yes, because the controlled burn should not have been started when the forest was dry

_____ c. No, because all controlled burns cause some destruction to nearby areas

_____ d. No, because only valleys and hills can be burned without causing some destruction to nearby areas

18. What type of fire do you think it was?

_____ a. a surface fire

_____ b. a crown fire

_____ c. a ground fire

_____ d. a lightning fire

HOW OLD ARE YOU? _____

WHAT GRADE ARE YOU IN? _____

SEX? _____ MALE

_____ FEMALE

WHAT IS YOUR FATHER'S OCCUPATION OR THE OCCUPATION OF THE HEAD OF YOUR HOUSEHOLD?

_____

DO YOU HAVE A TELEVISION SET IN YOUR HOME?

NO _____

YES _____ BLACK & WHITE? _____

COLOUR? _____

THE END

APPENDIX E

ITEM ANALYSIS AND QUESTIONNAIRE RELIABILTIES - PRODUCTION AND PRESENTER VARIABLE STUDIES I and II

TABLE 1

Item Analysis for Cognitive Section of Preliminary Questionnaire: Production and Presenter Variable Studies I & II

Item	Analysis				Item	Analysis			
	Upper	Lower	Difficulty index	Discriminability index		Upper	Lower	Difficulty index	Discriminability index
1	5	3	0.50	0.25	23	5	5	0.63	0.00
2	2	1	0.19	0.13	24	6	2	0.50	0.50
3	6	5	0.69	0.13	25	7	3	0.63	0.50
4	8	6	0.88	0.25	26	4	2	0.38	0.25
5	6	7	0.81	----	27	7	1	0.50	0.75
6	8	6	0.88	0.25	28	8	0	0.50	1.00
7	3	1	0.25	0.25	29	6	1	0.44	0.63
8	4	4	0.50	0.00	30	8	4	0.75	0.50
9	4	3	0.44	0.13	31	7	2	0.56	0.63
10	2	2	0.25	0.00	32	7	1	0.50	0.75
11	5	1	0.38	0.50	33	6	1	0.44	0.63
12	8	1	0.56	0.88	34	8	4	0.75	0.50
13	5	3	0.50	0.25	35	6	4	0.63	0.25
14	5	2	0.44	0.38	36	4	2	0.38	0.25
15	6	0	0.38	0.75	37	6	2	0.50	0.50
16	5	2	0.44	0.38	38	6	2	0.50	0.50
17	3	0	0.19	0.38	39	6	1	0.44	0.63
18	8	3	0.69	0.63	40	7	2	0.56	0.63
19	7	2	0.56	0.63	41	5	3	0.50	0.25
20	5	0	0.31	0.63	42	2	1	0.19	0.13
21	7	0	0.44	0.88	43	4	0	0.25	0.50
22	8	3	0.69	0.63	44	6	1	0.44	0.63
					45	7	3	0.63	0.50

Note.--Difficulty and discriminability indices are based on division of upper 27% and lower 27% scorers correctly responding to each item according to the system outlined in Ebel (1965, p.347).

TABLE 2

Item Analysis for Cognitive Section of Final Questionnaire: Production Variable Studies I & II

Item	Analysis				Item	Analysis			
	Upper	Lower	Difficulty index	Discriminability index		Upper	Lower	Difficulty index	Discriminability index
1	5	3	0.50	0.25	14	6	2	0.50	0.50
2	2	1	0.19	0.13	15	7	1	0.50	0.75
3	4	8	0.88	0.25	16	8	0	0.50	1.00
4	3	1	0.25	0.25	26	6	1	0.44	0.63
5	7	1	0.50	0.75					
6	5	1	0.38	0.50	17	8	4	0.75	0.50
7	5	3	0.50	0.25	18	7	2	0.56	0.63
8	5	2	0.44	0.38	19	7	1	0.50	0.75
25	4	0	0.25	0.50	20	6	1	0.44	0.63
					21	4	2	0.38	0.25
9	5	2	0.44	0.38	22	6	2	0.50	0.50
10	7	2	0.56	0.63	23	6	1	0.44	0.63
11	5	0	0.31	0.63	24	5	3	0.50	0.25
12	7	0	0.44	0.88	27	7	3	0.63	0.50
13	8	3	0.69	0.63					

Note.--Difficulty and discriminability indices are based on division of upper 27% and lower 27% scorers correctly responding to each item according to the system outlined in Ebel (1965, p.347).

[a]Items 1-8 and 25 related to section I of programs; items 9-16 and 26 to section II; and items 17-24 and 27 to section III.

TABLE 3

K-R Reliability for Cognitive Section of Final Questionnaire: Production Variable Studies I & II

S[a]	Variance Unit			S	Variance Unit			Item[b]	K-R Unit			Item	K-R Unit		
	Score (X)	$X-\overline{X}$	$X-\overline{X}^2$		Score (X)	$X-\overline{X}$	$X-\overline{X}^2$		p_i[c]	q_i[d]	$(p_i)(q_i)$		p_i	q_i	$(p_i)(q_i)$
1	21	9.167	84.034	16	13	1.167	1.362	1	.533	.466	.248	14	.600	.400	.240
2	10	1.833	3.360	17	11	0.833	0.694	2	.133	.867	.115	15	.600	.400	.240
3	6	5.833	34.024	18	11	0.833	0.694	3	.800	.200	.160	16	.367	.633	.232
4	7	4.833	24.958	19	18	6.167	38.032	4	.367	.633	.232	26	.467	.533	.249
5	12	0.167	0.028	20	14	2.167	4.696	5	.433	.567	.246				
6	16	4.167	17.364	21	11	0.833	0.694	6	.333	.667	.222	17	.700	.300	.210
7	15	3.167	10.030	22	17	5.167	26.698	7	.433	.567	.246	18	.667	.333	.222
8	13	1.167	1.362	23	13	1.167	1.362	8	.433	.567	.246	19	.633	.367	.232
9	15	3.167	10.030	24	12	0.167	0.028	25	.300	.700	.210	20	.433	.566	.245
10	8	3.833	14.692	25	5	6.833	46.690					21	.467	.533	.249
11	23	11.167	124.702	26	4	7.833	61.356	9	.500	.500	.250	22	.600	.400	.240
12	2	9.833	96.688	27	3	8.833	78.022	10	.567	.433	.246	23	.533	.467	.249
13	14	2.167	4.696	28	15	3.167	10.030	11	.367	.633	.232	24	.533	.467	.249
14	17	5.167	26.698	29	15	3.167	10.030	12	.533	.467	.249	27	.500	.500	.250
15	9	2.833	8.026	30	5	6.833	46.690	13	.700	.300	.210				

Note.--Calculations proceed as shown below.

Calculation of variance:

$\sum X = 355$, $N = 30$, $\overline{X} = 11.833$, $\sum (X-\overline{X}^2) = 787.770$

Variance = $\sum (X-\overline{X}^2)/N-1 = 787.770/29 = 27.164$

$= \sigma^2$ = unbiased estimate.

Calculation of r_{K-R} using K-R 20:

$K = 27$, $\sum (p_i)(q_i) = 6.219$

$r_{K-R} = (K/K-1)(\sigma^2-\sum p_i q_i)/\sigma^2$

$= (27/26)(27.164-6.219/27.164) = (1.038)(.771)$

$= .800 - r_{K-R}$ = acceptable reliability.

[a] Subjects were randomly numbered.

[b] Items 1-8 and 25 related to section I of programs; items 9-16 and 26 to section II; and items 17-24 and 27 to section III.

[c] p_i designates the proportion of subjects responding correctly to the item.

[d] q_i designates the proportion of subjects responding incorrectly to the item.

TABLE 4

Item Analysis for Cognitive Section of Final Questionnaire: Presenter Variable Study I

Item[a]	Analysis				Item	Analysis			
	Upper	Lower	Difficulty Index	Discriminability Index		Upper	Lower	Difficulty Index	Discriminabilty Index
1	2	1	0.19	0.13	9	5	2	0.44	0.38
2	8	6	0.88	0.25	10	8	0	0.50	1.00
3	7	1	0.50	0.75	17	6	1	0.44	0.63
4	5	3	0.50	0.25	11	8	4	0.75	0.50
5	5	2	0.44	0.38	12	7	1	0.50	0.75
16	4	0	0.25	0.50	13	6	4	0.63	0.25
6	5	2	0.44	0.38	14	4	2	0.38	0.25
7	7	0	0.44	0.88	15	7	2	0.56	0.63
8	8	3	0.69	0.63	18	7	3	0.63	0.50

Note: Difficulty and discriminability indices are based on division of upper 27% and lower 27% scorers correctly responding to each item according to the system outlined in Ebel (1965, p. 347).

[a]Items 1-5 and 16 are related to section I of all programs; items 6-10 and 17 to section II; and items 11-15 and 18 to section III.

TABLE 5

K-R Reliability for Cognitive Section of Final Questionnaire: Presenter Variable Study I

S[a]	Variance Unit			Item[b]	K-R Unit		
	Score (X)	$X-\bar{X}$	$X-\bar{X}^2$		p_i[c]	q_i[d]	$(p_i)(q_i)$
1	14	5.27	27.77	1	.133	.867	.115
2	8	0.73	0.53	2	.900	.100	.090
3	7	1.73	2.99	3	.167	.833	.246
4	5	3.73	13.91	4	.433	.567	.246
5	9	0.27	0.07	5	.433	.567	.246
6	10	1.27	1.61	16	.300	.700	.210
7	11	2.27	5.15	6	.500	.500	.250
8	8	0.73	0.53	7	.533	.467	.249
9	11	2.27	5.15	8	.700	.300	.210
10	5	3.73	13.91	9	.533	.467	.249
11	14	5.27	27.77	10	.367	.633	.232
12	2	6.73	45.29	17	.467	.533	.249
13	10	1.27	1.61	11	.700	.300	.210
14	10	1.27	1.61	12	.633	.367	.232
15	8	0.73	0.53	13	.700	.300	.210
16	9	0.27	0.07	14	.467	.533	.249
17	6	2.73	7.45	15	.667	.333	.222
18	11	2.22	4.93	18	.500	.500	.250
19	12	3.27	13.91				
20	10	1.27	1.61				
21	9	0.27	0.53				
22	13	4.27	18.23				
23	9	0.27	0.53				
24	10	1.27	1.61				
25	4	4.73	22.37				
26	3	5.73	32.83				
27	6	2.73	7.45				
28	12	3.27	13.91				
29	10	1.27	1.61				
30	6	2.73	7.45				

Note: Calculations proceed as shown below.

Calculation of Variance:

$\Sigma X=262$, $N=30$, $\bar{X}=8.73$, $\Sigma(X-\bar{X}^2)=282.92$

Variance $=\Sigma(X-\bar{X}^2)/N-1 = 282.92/29$

$= 9.756 = \sigma^2$ = unbiased estimate

Calculation of r_{K-R} using K-R 20:

$K=18$, $\Sigma(p_i)(q_i)=3.965$

$r_{K-R} = (K/K-1)(\sigma^2 - \Sigma p_i q_i)/\sigma^2$

$= (18/17)(9.765 - 3.965)/9.765$

$= 0.629 = r_{K-R}$

[a] Subjects were randomly numbered

[b] Items 1-5 and 16 related to section I of programs; items 6-10 and 17 to section II; and items 11-15 and 18 to section III.

[c] p_i designates the proportion of subjects responding correctly to the item.

[d] q_i designates the proportion of subjects responding incorrectly to the item.

TABLE 6

Item Analysis for Cognitive Section of Final Questionnaire: Presenter Variable Study II

Item[a]	Analysis				Item	Analysis			
	Upper	Lower	Difficulty Index	Discriminability Index		Upper	Lower	Difficulty Index	Discriminability Index
1	3	1	0.25	0.25	9	4	2	0.38	0.25
2	8	6	0.88	0.25	10	4	2	0.25	0.25
3	7	1	0.50	0.75	17	7	4	0.69	0.38
4	8	4	0.75	0.50	11	8	4	0.75	0.50
5	5	0	0.31	0.63	12	7	5	0.75	0.25
16	3	1	0.25	0.25	13	8	4	0.75	0.50
6	3	0	0.19	0.38	14	7	4	0.69	0.38
7	8	5	0.81	0.38	15	7	4	0.69	0.38
8	8	2	0.63	0.75	18	7	1	0.50	0.75

Note: Difficulty and discriminability indices are based on division of upper 27% and lower 27% scorers correctly responding to each item according to the system outlined in Ebel (1965, p. 347).

[a]Items 1-5 and 16 are related to section I of all programs; items 6-10 and 17 to section II; and items 11-15 and 18 to section III.

TABLE 7

K-R Reliability for Cognitive Section of Final Questionnaire: Presenter Variable Study II

S[a]	Variance Unit			Item[b]	K-R Unit		
	Score (X)	$X-\overline{X}$	$X-\overline{X}^2$		p_i[c]	q_i[d]	$(p_i)(q_i)$
1	12	.833	.694	1	.133	.867	.115
2	11	.167	.028	2	.933	.067	.063
3	12	.833	.694	3	.433	.567	.246
4	15	3.833	14.692	4	.700	.300	.210
5	15	3.833	14.692	5	.333	.667	.222
6	15	3.833	14.692	16	.300	.700	.210
7	9	2.167	4.696	6	.400	.600	.240
8	14	2.833	8.026	7	.733	.267	.196
9	13	1.833	3.360	8	.567	.433	.246
10	16	4.833	23.358	9	.633	.367	.222
11	9	2.167	4.696	10	.367	.633	.222
12	15	3.833	14.692	17	.667	.333	.222
13	11	.167	.028	11	.700	.300	.210
14	6	5.167	26.698	12	.767	.233	.179
15	8	3.167	10.030	13	.800	.200	.160
16	9	2.167	4.696	14	.567	.433	.246
17	15	3.833	14.692	15	.733	.267	.196
18	5	6.167	38.032	18	.533	.467	.249
19	12	.833	.694				
20	14	2.833	8.026				
21	10	1.167	1.362				
22	16	4.833	23.358				
23	7	4.167	17.364				
24	6	5.167	26.698				
25	11	.167	.028				
26	8	3.167	10.030				
27	12	.833	.694				
28	16	4.833	23.358				
29	8	6.167	10.030				
30	5	6.167	38.032				

Note: Calculations proceed as shown below.

Calculation of Variance:

$\Sigma X=335$, $N=30$, $\overline{X}=11.167$, $\Sigma(X-\overline{X}^2)=358.17$

Variance $=\Sigma(X-\overline{X}^2)/N-1 = 358.17/29$

$= 12.351 = \sigma^2$ = unbiased estimate

Calculation of r_{K-R} using K-R 20:

$K=18$, $\Sigma(p_i)(q_i)=3.654$

$r_{K-R} = (K/K-1)(\sigma^2 - \Sigma p_i q_i)/\sigma^2$

$= (18/17)(12.351 - 3.654/12.351$

$= 0.746 = r_{K-R}$

[a] Subjects were randomly numbered.

[b] Items 1-5 and 16 related to section I of programs; items 6-10 and 17 to section III; and items 11-15 and 18 to section III;

[c] p_i designates the proportion of subjects responding correctly to the item.

[d] q_i designates the proportion of subjects responding incorrectly to the item.

TABLE 8

Product Moment Correlation Between Split Halves of Affective Section of Final Questionnaire: Production Studies I & II - Presenter Study I

Item Group[a]	Scores						
	X	Y	x	y	x^2	y^2	xy
1 (22/1)	2.233	1.933	-1.025	-1.196	1.051	1.430	1.226
2 (21/2)	3.433	3.033	0.176	-0.097	0.031	0.009	-0.017
3 (18/3)	4.300	3.867	1.043	0.738	1.089	0.545	0.770
4 (23/4)	2.833	2.700	-0.425	-0.429	0.181	0.184	0.182
5 (19/5)	3.833	3.833	0.575	0.704	0.331	0.496	0.405
6 (17/6)	3.200	3.233	-0.058	0.104	0.003	0.011	-0.006
7 (30/7)	2.567	2.500	-0.691	-0.629	0.477	0.396	0.435
8 (27/8)	3.533	3.700	0.276	0.571	0.076	0.326	0.158
9 (25/9)	3.067	3.067	-0.191	-0.063	0.036	0.004	0.012
10 (16/10)	3.833	3.933	0.576	0.804	0.332	0.646	0.463
11 (24/11)	4.267	4.133	1.009	1.004	1.018	1.008	1.013
12 (28/12)	2.300	2.400	-0.958	-0.729	0.918	0.531	0.698
13 (29/13)	3.033	2.933	-0.225	-0.196	0.051	0.038	0.044
14 26/14)	3.367	3.067	0.109	-0.063	0.012	0.004	-0.007
15 20/15)	3.067	2.600	-0.191	-0.529	0.036	0.280	0.101
	$\bar{X}$=3.258	$\bar{Y}$=3.129	0.000	0.000	5.642	5.908	5.477

Note: Calculations proceed as shown below.

Calculation of Standard Deviations:

$$\sigma x = \sqrt{x^2/N} = \sqrt{5.642/15} = .613$$

$$\sigma y = \sqrt{y^2/N} = \sqrt{5.908/15} = .628$$

Correlation Coefficient:

$$r_{xy} = \frac{\Sigma xy}{N\sigma x\sigma y} = \frac{5.477}{15(.613)(.628)} = .948 = \text{uncorrected } r_{xy}$$

Split-Half Reliability (Spearman-Brown)

$$r_2 = \frac{nr_{xy}}{1 + (n-1)r_{xy}} = \frac{2(.948)}{1 + (2-1)(.948)} = .973$$

[a]Attitude statements were randomly numbered. Item groups 1-5 related to section I of programs; item groups 6-10 to section II; item groups 11-15 to section III.

TABLE 9

Product Moment Correlation Between Split Halves of Affective Section of Final Questionnaire: Presenter Variable Study II

Item Group[a]	Scores						
	X	Y	x	y	x^2	y^2	xy
1 (22/1)	2.552	2.138	-0.643	-0.952	0.413	0.906	0.612
2 (21/2)	3.517	3.379	0.322	0.289	0.104	0.084	0.093
3 (18/3)	3.862	3.241	0.667	0.151	0.445	0.023	0.101
4 (23/4)	4.310	3.690	1.115	0.600	1.243	0.360	0.669
5 (19/5)	2.966	3.000	-0.229	-0.090	0.052	0.008	0.021
6 (17/6)	3.034	3.379	-0.162	0.290	0.026	0.084	-0.047
7 (30/7)	3.103	3.379	-0.093	0.290	0.009	0.084	-0.027
8 (27/8)	2.621	2.759	-0.575	-0.331	0.331	0.110	0.190
9 (25/9)	3.345	3.483	0.150	0.394	0.023	0.155	0.059
10 (16/10)	2.138	2.759	-1.058	-0.331	1.120	0.110	0.350
11 (24/11)	3.172	3.207	-0.024	0.118	0.001	0.014	-0.003
12 (28/12)	4.069	3.655	0.874	0.566	0.764	0.320	0.495
13 (29/13)	3.138	2.379	-0.057	-0.711	0.003	0.506	0.041
14 (26/14)	3.448	3.414	0.253	0.324	0.064	0.105	0.082
15 (20/15)	2.655	2.483	-0.540	-0.607	0.292	0.368	0.328
	$\bar{X}$=3.195	$\bar{Y}$=3.090	0.000	0.000	4.899	3.237	2.964

Note: Calculations proceed as shown below.

Calculation of Standard Deviations:

$$\sigma x = \sqrt{x^2/N} = \sqrt{4.899/15} = .572$$

$$\sigma y = \sqrt{y^2/N} = \sqrt{3.237/15} = .465$$

Correlation Coefficient:

$$r_{xy} = \frac{\Sigma xy}{N\sigma x \sigma y} = \frac{2.964}{15(.572)(.465)}$$

$$= .743 = \text{uncorrected } r_{xy}$$

Split-Half Reliability (Spearman-Brown)

$$r_2 = \frac{nr_{xy}}{1 + (n-1)r_{xy}} = \frac{2(.743)}{1 + (2-1)(.743)} = .853$$

[a]Attitude statements were randomly numbered. Item groups 1-5 related to section I of programs; item groups 6-10 to section II; item groups 11-15 to section III.

APPENDIX F

DEMOGRAPHIC AND MEDIA ACCESSIBILITY INDICES - PRODUCTION AND PRESENTER VARIABLE STUDIES I AND II

TABLE I

Demographic and Media Accessibility Indices:

Production Variable Study I[a]

Response	Group[b]					
	Program I	Program II	Program III	Simple Program	Control	Total
Age						
11	11%	9%	6%	3%	4%	6.6%
12	69	70	79	73	78	73.8
13	16	20	11	22	17	17.2
14	3	1	4	2	1	2.2
15	1	0	0	0	0	0.2
Sex						
Male	52%	65%	55%	50%	60%	56.4%
Female	48	35	45	50	40	43.6
Socio-Economic Home Environment[c]						
No Response	4%	0%	0%	6%	1%	2.2%
Professional	45	35	44	31	45	40.0
White Collar	25	37	30	25	26	28.6
Blue Collar	26	28	26	38	28	29.2
Type of Television Set in Home						
Not Applicable	0%	0%	0%	0%	2%	0.4%
Black & White	44	56	60	56	52	53.6
Colour	29	32	25	17	22	25.0
Both	27	12	15	27	24	21.0

[a]Voice-Over, Superimposition and Combined Review treatments compared with Simple Program and Control Group.

[b]n = 100 for each grouping; N = 500 for Total Column.

[c]Socio-economic profiles are derived from categories established in Dominion Bureau of Statistics (1961, pp. 15-19).

TABLE II

Demographic and Media Accessibility Indices:

Production Variable Study II[a]

Response	Group[b]					
	Program I	Program II	Program III	Simple Program	Control	Total
Age						
11	9%	6%	6%	3%	4%	5.8%
12	78	86	77	74	78	78.8
13	12	7	15	21	17	14.2
14	0	1	2	2	1	1.2
Sex						
Male	49%	47%	35%	51%	60%	48.2%
Female	51	53	65	49	40	51.8
Socio-Economic Home Environment[c]						
No Response	3%	0%	0%	6%	1%	2.1%
Professional	59	57	62	30	46	50.7
White Collar	22	32	27	25	25	26.0
Blue Collar	16	11	11	39	28	21.2
Type of Television Set in Home						
Not Applicable	0%	0%	1%	0%	0%	0.2%
Black & White	52	52	51	57	54	52.8
Colour	20	34	32	18	22	24.9
Both	28	14	16	25	24	22.1

[a]Spaced, Massed and Summary Review treatments compared with Simple Program and Control Group.

[b]n = 97 for each grouping; N = 485 for Total Column.

[c]Socio-economic profiles are derived from categories established in Dominion Bureau of Statistics (1961, pp. 15-19).

TABLE III

Demographic and Media Accessibility Indices:

Presenter Variable Study I[a]

Response	Group[b]				
	Program I	Program II	Program III	Control	Total
Age					
11	2%	1%	2%	3%	2.2%
12	66	74	68	78	71.4
13	28	24	29	17	24.4
14	4	0	1	2	2.0
Sex					
Male	51%	42%	49%	61%	50.8%
Female	49	58	51	39	49.2
Socio-economic Home Environment[c]					
No Response	6%	0%	3%	1%	2.5%
Professional	29	26	39	42	33.9
White Collar	34	40	27	27	31.9
Blue Collar	31	34	31	30	31.7
Type of Television Set in Home					
Not Applicable	1%	0%	1%	1%	0.8%
Black & White	56	54	71	52	58.4
Colour	20	30	21	22	23.3
Both	23	16	7	25	17.5

[a]Grade seven sample.

[b]n = 90 for each grouping; N = 360 for Total Column.

[c]Socio-economic profiles are derived from categories established in Dominion Bureau of Statistics (1961, pp. 15-19).

TABLE IV

Demographic and Media Accessibility Indices:

Presenter Variable Study II[a]

Response	Group[b]				
	Program I	Program II	Program III	Control	Total
Age					
15	2%	14%	10%	8%	8.6%
16	68	76	69	72	71.2
17	26	9	13	20	16.9
18	4	1	8	0	3.3
Sex					
Male	49%	48%	50%	41%	46.9%
Female	51	52	50	59	53.1
Socio-economic Home Environment[c]					
No Response	6%	0%	1%	0%	1.7%
Professional	41	56	40	50	46.9
White Collar	26	27	39	31	30.6
Blue Collar	27	17	20	19	20.8
Type of Television Set in Home					
Not Applicable	1%	0%	0%	0%	0.3%
Black & White	53	57	43	40	48.3
Colour	28	32	32	34	31.7
Both	18	11	25	26	19.7

[a]Grade eleven sample.

[b]n = 90 for each grouping; N = 360 for Total Column.

[c]Socio-economic profiles are derived from categories established in Dominion Bureau of Statistics (1961, pp. 15-19).

APPENDIX G

PERCEIVED AGE OF PRESENTER(S) INDICES - PRESENTER VARIABLE STUDIES I & II

TABLE I

Perceived Age of Presenters: Presenter Variable Study I[a]

Presenter	Perceived Age	Group[b] Program I	Program II	Program III	Total
YOUNG HIP	19 or less	24%	17%	8%	16.3%
	20-24	48	52	43	47.8
	25-29	20	27	39	28.5
	30-34	6	4	10	6.7
	35-39	2	0	0	0.7
YOUNG STRAIGHT	19 or less	2%	2%	5%	2.9%
	20-24	26	24	33	27.8
	25-29	31	36	31	32.6
	30-34	29	32	22	27.8
	35-39	12	6	9	8.9
MATURE STRAIGHT	25-29	2%	1%	4%	2.6%
	30-34	9	7	5	6.7
	35-39	11	22	22	18.5
	40-44	27	27	21	24.8
	45-49	32	30	33	31.8
	50-54	17	4	6	8.9
	55-59	2	9	9	6.7

[a]Grade seven sample.

[b]n = 90 for each grouping.

TABLE II

Perceived Age of Presenters: Presenter Variable Study II[a]

		Group[b]			
Presenter	Perceived Age	Program I	Program II	Program III	Total
YOUNG HIP	19 or less	8%	10%	4%	7.4%
	20-24	68	65	49	60.4
	25-29	22	22	40	28.1
	30-34	1	2	4	2.6
	35-39	1	1	3	1.5
YOUNG STRAIGHT	19 or less	3%	4%	6%	4.4%
	20-24	36	40	37	37.4
	25-29	33	40	47	40.1
	30-34	22	11	8	14.0
	35-39	6	5	2	4.1
MATURE STRAIGHT	25-29	1%	1%	0%	0.7%
	30-34	2	8	1	3.7
	35-39	10	36	15	20.0
	40-44	26	37	21	27.8
	45-49	48	14	42	34.9
	50-54	11	3	19	11.1
	55-59	2	1	2	1.8

[a]Grade eleven sample.

[b]n = 90 for each grouping.