# THE EFFECTS OF TELEVISION PACING RATES ON VIEWER ATTITUDE AND INTEREST LEVELS

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ABSTRACT

The Effects Of Television Pacing Rates
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Three differently edited versions of the same TV presentation consisting of "rapid", "moderate" and "original" pacing rates were shown to 120 grade 10 Ss to ascertain their differential effectiveness in changing viewer attitudes and maintenance of viewer interest. Ss were randomly divided into three TV viewing treatment groups and one non-viewing control group. Attitudes were measured by a 32 item post attitude questionnaire with reliability of .90. Interest was measured by a 20 item post interest questionnaire with reliability of .96. Single classification ANOVA and HSD Tests revealed significant differences ($p < .05$) on the attitude measure between the treatment groups and the control group and between the faster paced versions and the original version. The rapid paced version was found to be the most effective. While no

significant differences were found in interest levels, the rapid pacing rate significantly increased viewer attention.

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# Chapter 1

# INTRODUCTION

## Context of the Study

The most comprehensive reviews of research in media during the period 1950-70 were conducted by Stickell (1964), Reid and McClennan (1967), Chu and Schramm (1968), and Saettler (1968). These reviewers found that the vast majority of studies compared student learning of ITV lessons with other methods of instruction. The basic conclusions reached were that 1) many of the studies which compared one class of media to another were defective due to experimental design, and 2) in the majority of cases, no significant differences were found between the effectiveness of one medium as an instructional tool versus another. These conclusions based on a large amount of evidence indicated that TV was as effective as any other medium for instruction.

Although this was a new conclusion for the TV medium, the same comparative type of studies had

previously produced the same conclusion for educational films. Following this earlier film research situation, which had produced an overabundance of comparative film studies Hoban (1960), in a review directed toward future film research, suggested among other areas that it was the study of production variables which was now "important both theoretically and practically." A recent review by Allen (1971, p. 12) reaffirmed this research direction for the newer types of media, with the conclusion that "The folly of assigning generalized all inclusive attributes to specific classes of media (e.g., TV, film, print, CAI) under all conditions is finally being appreciated, and we should observe more intensive research efforts to discover how to design and manipulate the media so as to enhance their effectiveness."

Educational television has been utilized at an increasing rate both in schools and homes. To date its use has been most strongly motivated by cost-effective and/or logistical reasons. Although the present use and the increasing advocation for expanded future use of TV technology can benefit our educational system in an unpresedented manner, ETV producers have till now had very few guidelines which they could use in designing

educational programs. If TV technology is to truly benefit our educational system and if the educational technologist is to have answers for even the most basic TV lesson design problems encountered by the ETV producer, a systematic exploration of the effects that TV production variables have on learning is required. A systematic study of the area involves at the very least the 1) identification of production variables, 2) clarification of production variables, 3) assessment of the effects production variables have on learning, and 4) assessment of the effects production variables have on attention and motivation. In order that research in this area may become practical for the ETV producer, it is also important that production variable studies work within a broader communication model of the type Lasswell (1948) suggested:

who
says what
in which channel
to whom
with what effect.

With precise clarification within each study conducted of the basic variables of TV message, audience, communicator, and channel, it will be possible to accurately attribute learning effects to the salient production variable causes. Poor methodological designs

and lack of variable clarification have and will seriously limit both the utility and credibility of results in this area. In short, both accurate descriptions of production variables and the larger communication variables are a prerequisite for obtaining information on production variable effects with which propositions can be developed. With accurate propositions ETV producers will be able to systematically contribute toward optimizing ETV programs, through the knowledgeable manipulation of TV production variables.

TV production variables can be described as being those separate definable elements, which when combined form the whole of a TV presentation. A useful though broad classification by Shepherd (1967) identifies the following seven production variable categories:

1) camera factors
2) lighting
3) setting
4) graphic devices
5) audio factors
6) performer variables
7) opening-closing format

One other production variable which controls all

the above variables is editing. The attention this production variable receives in the above categories is indicative of the neglect it has received in research of production variable effects on learning. This is particularly surprising when the role editing plays in the organization of a visual media presentation has been considered by many filmmakers to be of vital importance. In fact the majority of film theory finds its basic principles in editing. MacCann (1966, p. 19) suggests "the art of editing is basic to the art of film" and although "Every shot is a separate realistic image,...the total edited effect can be much more... It can give us a vivid rush of excitement...". The great Russian director V.I. Pudovkin (1950, p. 24) maintained that "The film is not shot, but built, built up from the separate strips of celluloid that are its raw material." Sergei Eisenstein (1949) perhaps most famous of all directors, also based his ideas of filmmaking on the editing process. He suggested that the making of a film was analogous to the "series of explosions of an internal combustion engine, driving forward its automobile or tractor; ...similarly, the dynamics of montage serve as impulses driving forward the total film." In a more operational description of the principles of montage, Arnheim (1957, p. 94)

considered the lengths separate strips of celluloid play in building rhythm to be a basic way to effect specific audience responses. He suggested long strips of film tend to produce a quiet rhythm while short strips are usually employed in cases of climactic scenes producing a rapid action effect and quick rhythm.

Although a great deal of film theory is based on the editing process, and has been since the beginning of motion picture production, there has been little to no systematic testing of the effects that the editing of films or television programs have on viewers. The few experiments which have been conducted have used media presentations which had high audio channel information. Virtually no experimentation has been conducted with high visual channel information TV programs. Experimenters using high audio channel information programs have tended to measure editing effects in terms of cognitive learning. These tests have of necessity, measured the receivers' retention of factual audio channel information. By this approach the effects of an affective film "experience" have most often been completely neglected.

The need to explore production variable effects in educational television where the visual channel is more adequately used has been suggested by a number of researchers. Anderson (1972, p. 57) suggests that "the

case for more research into interest and attention, particularly where information is presented visually, and their relationship to learning is evident." He concluded, following his recent review of research on the effects of TV production variables on learning, that an optimum use of television necessitates increasing the amount of visual information contained in ETV programs. Gattegno (1969) specifically affirmed this need by maintaining that sight is a far swifter means of expression and communication than speech. He suggested that we have only to remove the verbal side of programs to force viewers to use their gifts of vision.

## Scope of the Study

The present study is focussed within a framework where visual information is considered most important rather than only complementing audio information. The study is rooted within the Lasswell (1948) communication model, and in doing so is particularly concerned with precise definition and description of the attributes of each component of the model for the present particular communication situation. The study is designed to closely relate to the changing function

of educational media as being parts not wholes of multi-media lesson presentations, such as those designed by Briggs (1970). In a similar direction the study also serves the purpose of examining TV as a motivational device as investigated in a series of experiments by May (1965).

Since the majority of research in this area has been conducted with the use of films and because film research preceded TV research by thirty-five years, the experimenter has found it useful to examine some of the more noteworthy film studies in conjunction with TV evidence. This is not an acceptance of film evidence as being applicable to the TV medium, but rather a use of this evidence as a rational approach to developing hypotheses for television.

## Problem Statement and Clarification

The basic question this study attempts to answer is:

What relationship exists between the rate of pacing a high visual information TV presentation and the attitude scores and interest levels of viewers?

The method this experiment uses assumes that a relationship does exist and attempts to systematically select an estimate of an optimum pacing rate, which

would be most effective in changing viewer attitudes and maintaining viewer interest from along a theoretically infinite spectrum of slow to fast pacing rates.

The variables examined are as follows:

Independent:
1. "original" pacing of TV presentation.
2. "moderate" pacing of TV presentation.
3. "rapid" pacing of TV presentation.

Dependent:
1. Attitude as measured by a post attitude questionnaire on war and fighting constructed by the experimenter.
2. Interest level in the TV presentations as measured by a post interest questionnaire constructed by the experimenter..

Control:
1. Grade 10 high-school students.
2. Age 14 years to 16 years.
3. Approximately equal numbers of male and female subjects.

Intervening:
1. Previous interest in subject matter.
2. Anxiety states associated with attitude and interest questionnaire testing.
3. Previous viewer attitudes toward the use of ETV as an instructional device.
4. Degree of "persuasability" of Ss in relation to such variables as self-esteem.

Pacing is not synonymous with editing, rather it is one part of editing. Pacing is a function of the length and number of discrete film shots edited to form a whole TV presentation. Pacing can be classified in two categories as either constant or non-constant. In a constant mode all film shots are of equal length while in a non-constant mode shots are of different lengths. Pacing in the problem statement refers to a non-constant

mode. Pacing is the only production variable which is manipulated in all three versions of the TV presentation.

# Chapter 2

## RELATED RESEARCH

Due to the experimental nature of this study, the researcher found there was virtually no experimental evidence dealing with the effects the pacing of visuals have on affective learning in educational television. The chapter which follows is therefore a synthesis of evidence from studies conducted in the areas of education, psychology, mass communication, and film, which deal most closely with the thesis problem.

### Early Film Research

In 1924, Freeman performed the first systematic research of visual media in education. One of the main conclusions resulting from this classic group of experiments was:

> The value of a film lies not necessarily in its generally stimulating effect, but rather in its ability to furnish a particular kind of experience. (emphasis added)

MacCann (1966, p. 18) recently referred to this "experience" attribute of film when he explicitly said "Film is concerned with experience, not inference." This film quality was discussed by Gordon (1969) when he concluded that visuals "tend to accentuate the psychologists of existance, the affective components of communication." The attribute was also described very early by the world renowned film theorist Balazs (1923, p. 40) who suggested that "The gestures of visual man are not intended to convey concepts which can be expressed in words, but such inner experiences, such non rational emotions which would still remain unexpressed when everything that can be told has been told."

It is unlikely that the film "experience" is precisely the same "experience" which television viewers have. McLuhan (1967) has insightfully provided a perspective with which theoretical distinctions between the two can be seen. An abundance of evidence, however, has suggested there are no overall identifiable characteristics which support the superiority of one of these two media over the other in their uses as instructional devices. It is also evident that both mediums have a visual channel which is selectively built up from separate shots and which accentuates affective viewer responses.

That it may in time be possible to more clearly differentiate between the essential experiential characteristics of film and television is of less concern to the present experiment, than the acknowledgement that only only does a TV "experience" exist, but also that this "experience" can at least partially be examined in an experimental situation.

In the present experiment it was assumed that because the TV "experience" is essentially affective it would be possible to measure part of the "experience" in terms of viewer attitude change caused by a TV presentation and viewer interest in the TV presentation. An examination of the TV "experience" is not only an important consideration for the design of affective types of learning situations but also because the TV "experience" exerts profound effects on cognitive learning. This is to say that a change in the affective TV viewing "experience" tends to change the viewer's predispositions and perception of transmitted TV information whether it be essentially of a cognitive or affective nature.

As was previously suggested, a high visual channel information TV presentation tends to accentuate the affective visual experience. The TV

presentation selected for the present experiment used only the visual channel. This was not an attempt by the experimenter to neglect the complementary importance of the use of audio in ETV, but rather a systematic way to focus on and control for the affective effects, which were expected to result from manipulating the pacing rate of TV visuals. A greater understanding of the ways to manipulate the affective TV "experience" should contribute to a more complete and therefore efficient use of the TV medium in education.

Attitude Change and Viewer Interest

Although Freeman (1924) and Weber (1930) had clearly suggested that it was important for future research to direct energies toward the investigation of production variables, it was not until Hovland, Lumsdaine and Sheffield (1949) conducted a series of film studies entitled Experiments on Mass Communication, that communication and production design variables began to be systematically investigated. Their research report is considered by Saettler (1968, p. 117) to be "of great historical value, containing comprehensive discussions concerning instructional media variables

and offering fruitful suggestions for media research which has yet to be undertaken."

The experiments consisted of producing and evaluating a series of films for the army during World War II called Why We Fight. The films were designed to integrate new soldiers into the armed forces and to motivate them in their new roles. The underlying assumption of the films was that by giving the men more information about the war and its background, a more favorable attitude towards their acceptance of army life would be effected. However, the conclusions of the studies cast doubt on this supposition. The experimenters (Hovland, 1949, p. 256) found that although "The films produced sizeable increments in information they effected almost no sizeable changes on the more general opinion items" and "increases in information were only slightly correlated with changes in the opinions designated as sub-objectives of the orientation program." This result might partially be explained with the suggestion that the stress of designing the films for retention of specific information resulted in a neglect of designing the kind of films which could have produced an affective learning "experience," which might have contributed to attitude change. Certain

editing techniques may be able to produce greater affective learning if these techniques are identified and their effects examined. These could then be manipulated in systematic ways to reach definable learning objectives.

Hovland (1953) also regretted the limitations of having little time to revise the films on the basis of results since he found that films approached from a theoretical perspective rather than an immediate practical need produced the most effective results. It is in part in reference to this conclusion that the present approach works with attention towards Lasswell's communication model.

With respect to viewer interest, Hovland (1953) suggested that in general the men who most liked a film tended to be most affected by it. He concluded that the above relationship between interest and attitude change are not necessarily causal but can be explained by either:

1) interest in the film resulting in more opinion change
or 2) opinion change resulting in interest in the film
or 3) both responses are a result of the film itself rather than being causal to one another.

The present experiment will seek to determine

which of the above relationships exists between interest, attitude change, and the TV presentation for a particular communication process situation.

Another experiment conducted earlier by Hartmann (1936) dealt with manipulating the contents of the communication message. The experiment consisted of distributing two different leaflets to the public requesting support of two opposing political parties. One leaflet contained a rational persuasive approach while the other used an emotional appeal. The emotional approach was more effective in changing public opinion. Although conclusive statements concerning kinds of communication effects are at present impossible, the majority of evidence indicates that a moderate emotional appeal is more effective in changing a communication receiver's attitudes, than either a rational or very strong emotional appeal. The TV communication selected for the present experiment, wherein viewer attitudes were to be purposely changed, was therefore a moderate emotional appeal.

Viewer Attention To and Interest In Visual Stimuli

Berlyne (1951) presented cards containing different visual patterns at different rates of presentation

to subjects. He discovered that a recently changed stimulus was more often responded to by the viewer than one which had remained unchanged and had been responded to for some time. Additionally, he found "the effect was particularly strong and persistant if the changed stimulus continues to undergo changes." The overall conclusion was that movement in the form of changes in visual images affects attention. In regard to educational television, it could be supposed that viewer attention would be more apt to decrease in long duration TV shots than shorter ones.

An experiment conducted by Guba et al (1964) to examine eye movements during a television lecture, revealed a phenomenon termed 'blooming,' that is concerned with specific eyeball movements. They observed that 'blooming' frequently occurs "when the gaze begins to wander after a long scene showing nothing except the narrator talking. Upon the introduction of a new object, of movement of some type or of a scene transition, the 'blooming' ceases abruptly as the eye marker shifts to the new center of attention," (p. 394). The phenomenon suggests that a more rapid pacing of a TV presentation is more often responded to by a viewer than a longer presentation of the same material. It could therefore

be supposed that a greater number of images viewed per unit time should produce greater viewer attention in a TV presentation. It might also be expected that this result would be particularly evident in a highly visual TV presentation.

In a study attempting to examine the relationship between camera shots (viz., loose, medium, and close up shots) Williams (1968) found that a loose shot tended to decrease interest level. Although interest may arise independently from the viewers previous favorable experiences to the material being presented, attention has been suggested by Krathwohl (1966) to be a prerequisite type of affective learning to interest. It can therefore be assumed that sometimes greater viewer attention to a TV presentation will contribute to greater viewer interest in the TV presentation. Unfortunately in William's experiment, the visual images were not the same. For example, some viewers were shown close up shots while others were shown loose shots. It was therefore impossible to discern whether the increase in viewer interest arose independently or was the result of a causal relationship between attention and interest. Williams concluded that further research should attempt to discover if a relationship exists between the pacing rate of visuals

and interest levels. In this direction, the present experiment sought to investigate this relationship by manipulating the pacing rate while retaining an identical form of visual images throughout several versions of the same TV presentation. It was supposed that if the faster rates of pacing the visuals increased attention, it would then be possible to discover whether an increase in viewer attention effected a subsequent increase in viewer interest in the TV presentation.

Effects of Pacing on Cognitive and Affective Learning

This section examines five studies concerned with pacing media presentations. The first three investigate the relationship between pacing and recall of information. The fourth investigates the relationship of pacing to interest, attitude formation, and cognitive learning. The fifth study examines the effects pacing has on the viewer's perceived meanings in film.

Jaspen (1950) showed two versions of a film to navy trainees on how to assemble a breech block. One version was considered comprehensive, the other brief. Jaspen concluded from testing that the longer version

was more effective than the succinct. Unfortunately, the two versions were not sequentially the same. Despite the invalid method design, the experiment is noteworthy because it does probably point in the direction of a correct conclusion, viz. only a certain amount of factual information can be consumed per unit time, and that "information overload" is bound to occur if pacing is too fast. Optimum pacing rates must therefore be considered to exist only within each specific communication situation because of production variable dependence on the basic communication variables of message, audience, medium and communicator.

A later study by Aylward (1960) investigated the effects on learning of dynamic versus static editing in combination with distracting and non distracting backgrounds. The TV presentation was in a lecture format and was given to public speaking students. The study had its basis in a theory proposed by Barrow and Westley (1958, p. 1660) which states "that effectiveness in communication depends on controlling interferences which distract attention and which mask messages." Aylward concluded from experimental results that a dynamic style of editing is superior to a static style in terms of information gain. The

conclusion of the study was that viewer attention increased, thereby predisposing viewers to a greater learning opportunity. Despite the fact the results conflict with Jaspen's experiment, which is not surprising due to the differences between the two communication situations, both studies tend to agree with the information theory conclusion that overload of information will occur at some point. It is also evident that at some critical point before "information overload" occurs, the optimum pacing rate of a particular communication exists. The method of the present experiment was to move along the theoretical spectrum of infinitely slow to infinitely fast pacing of a TV presentation in order to systematically find an estimate of the pacing rate which was optimum in effecting viewers attitudes and interest in the particular experimental situation.

In a similar direction of research, Schlater (1970) recently attempted to study the maximum pacing rate at which visual information could be transmitted before information recall was impeded. Five presentations each 5.5 minutes long, composed of an increasing number of slides on Greek temple architecture were shown to high school students who were randomly divided into five experimental treatment groups. Schlater

found his method inadequate because the form of the visuals were too similar. Rather than causing interference, the visuals served the function of providing viewers with increased examples of the same information. These inadequacies were unfortunate because Schlater had adequately controlled for audio effects, and had developed two visual tests as measures of learning in an attempt to overcome the shortcomings of the typical fact test based on audio channel information. The experiment is also noteworthy because it represents the difficulties encountered in this new experimental area both in methodology and experimental design and indicates the important need for researchers to identify and clarify production variables as well as the salient variables in the overall communication process.

An examination of the effects of film movement on learning and attitude change conducted by Miller (1968) used a G.S.R. measure, a semantic differential measure, an attitude change questionnaire, and an information retention test to measure responses. Treatment groups viewed either a twenty minute motion picture called "Corral," a filmograph of "Corral", or a combination motion picture/filmograph of "Corral". It was concluded that a generalized statement of the positive effects of motion on a film audience is true

only with respect to its attitude about the film and its content. However, the important result of this study was that trends on salient GSR measures indicated that viewers of the motion picture, the more rapidly varying visual stimuli, did tend to score higher. Anderson (1972) noted that Miller concluded that his study had been contaminated by its use of motion versus non motion media presentations. He suggested that "the distinction should not have been made between motion and no motion, but between controlled motion used distinctively for its effect, and the same scene not so constructed. What is so effective in film may be rhythm-controlled motion..." It is rhythm-controlled motion i.e., pacing, which is examined in the present research experiment by using different versions of the same TV presentation.

Penn (1971) did examine the relationship of different ways of pacing film presentations and measured the effects in terms of the meanings viewers attributed to several concepts within the various film versions. The effects of both content and motion of animate and inanimate objects were also investigated in relation to viewers perceived meanings. The content of the films was either people, cars, or rectangles.

Motion of these objects was considered to be stationary, slow, or fast. The films were paced five different ways: 1) accelerating, 2) decelerating, 3) slow, 4) medium, 5) fast. The subjects, who were university students, had their responses measured by a semantic differential questionnaire (Osgoode 1969) and a word association test (Nobel 1962). The increased rate of pacing for all subject matters resulted in increases in viewer's perceived potency and activity of the films, i.e., on both measures of meaning, the films contained stronger meaning for viewers of the faster paced versions. "Although Penn used short, simple, subject matter films, the results produced a significant indication that fast rates of pacing evoke stronger meanings than slower paced film versions.

In reference to interest, it might be expected that if the effects of a faster rate of pacing do provide viewers with a more meaningful viewing "experience," then the faster pacing might also, for the particular communication situation, increase viewer interest in the presentation. In terms of Lasswell's (1948) communication model it may be anticipated that a more active and potent emotional meaning evoked by a communication containing faster than normal pacing might

result in a greater effect on viewer attitudes. Whether this effect would increase viewer attitudes toward the advocated position or not would necessarily depend on the type of appeal used. For example, if a fear appeal were used which did not adequately resolve viewer anxiety concerning the fear, it could be expected that the film "experience" perceived by viewers as being more intense due to the increased pacing rate, would decrease viewer attitude change away from the communication's advocated position.

# Chapter 3

## HYPOTHESES AND RATIONALE OF THE STUDY

### Hypotheses

The objective of this study will be to test the following hypotheses:

1. Ss viewing any of the three versions of the TV presentation will show greater changes in their attitudes towards war and fighting than Ss not viewing the TV presentations.
2. Increasing the rate of pacing the TV presentation will increase viewers' attitude scores.
3. Increasing the rate of pacing the TV presentation will increase viewers' interest scores.

### Rationale for Hypothesis 1

Studies by Hartmann (1936) and Hovland (1953) have shown that a moderate emotional appeal in a variety of media has proved to be more effective than either a strong emotional appeal or a rational appeal in

changing viewers' attitudes. It is therefore expected that a moderate emotional appeal which can be easily comprehended will produce a significant effect on viewer attitudes.

Rationale for Hypothesis 2 and 3

Studies concerning attention suggest that a more varied change in visual stimuli results in greater attention, due to greater viewer acquiesence in responding to visual stimuli (Krathwohl 1966). Therefore, a more rapid pacing of visual images should cause greater attention to the TV presentation. Though interest in a TV presentation may in some cases arise independently of attention, it need not always arise independently. An increase in interest level in the present experiment will be expected in part to be the result of an increase in attention. The faster paced TV presentations should also produce greater meaning in terms of activity and potency for viewers and it is interpreted that this increase in response will result in a more intensely emotional TV "experience" effecting a greater change in viewer attitudes.

An increase in attention and interest are considered to be prerequisite levels of affective learning

to an increase in attitude formation. With these prerequisites met by more rapidly paced versions, it is expected that, with all other variables being controlled, viewers will be more predisposed to a greater shift in attitude. It is possible, however, that due to the faster versions loss in duration of persuasive appeal time, subjects will show less change than they would in the typical "real" world instructional situation, where such a comparative effect would not be under consideration. Despite this counter variable effect it is expected that the combination of a more intense viewer emotional "experience" and a greater viewer attention to the faster paced TV versions, will result in a greater attitude change and viewer interest in the faster versions.

Operational Definitions of Variables

1. Independent variable - Pacing the TV Presentation

All three versions of the TV presentation are edited together in the same order and all are of an irregular non constant mode i.e., the individual shots are of different lengths. Increasing the pacing refers to decreasing the length of each shot in the "original"

version by 1/3 to make the "moderate" version and decreasing the length of each shot in the "original" version by 2/3 to make the "rapid" version. The resulting three versions are shown in Figure I.

The TV presentation contains high visual channel information in relation to no audio channel information. The message is "love your neighbour". The presentation is considered to be a moderate emotional appeal. (Appendix A contains a description of the TV presentation).

2. Dependent Variables - Attitude and Interest Levels

a) Attitude Level - Attitudes will be measured by a seven point Likert-type, strongly agree to strongly disagree, post attitude questionnaire constructed by the experimenter to measure attitudes toward war and fighting. Several items included in the questionnaire were selected from Robinson et al. (1968) standardized attitude tests. (Appendix B, Table I and Table II).

b) Interest Level - Interest level refers to the viewers' score on a twenty item five point Likert-type, strongly agree to strongly disagree, post interest questionnaire constructed by the experimenter to measure viewers' attention, enjoyment, and overall evaluation of the TV version viewed. (Appendix C, Table I and Table II).

PACING OF THE THREE TELEVISION PRESENTATIONS

| TV VERSION | NUMBER OF T.V. SHOTS | TOTAL DURATION |
|---|---|---|
| Original | 65 | 7 min. 33 secs. |
| Moderate | 65 | 5 min. 2 secs. |
| Rapid | 65 | 2 min. 29 secs. |

Figure 1.

Operationally Defined Hypotheses

The following hypotheses are operationally restated:

1. The three versions of the high visual information moderate emotional appeal TV presentation will be significantly effective in changing viewers' attitudes toward war and fighting as measured by a thirty-two item Likert-type post attitude questionnaire.
2. The "rapidly" paced version of the high visual information moderate emotional appeal TV presentation will produce significantly higher viewer attitude scores, as measured by a thirty-two item Likert-type post attitude questionnaire, than either the "moderately" or "originally" paced versions. Similarly the "moderately" paced version will produce significantly higher viewer attitude scores than the "originally" paced version.
3. The "rapidly" paced version of the high visual information moderate emotional appeal TV presentation will produce significantly higher viewer interest scores, as measured by a twenty item Likert-type post interest questionnaire,

than either the "moderately" or "originally" paced versions. Similarly the "moderately" paced version will produce significantly higher viewer interest scores than the "originally" paced version.

# Chapter 4

## PROCEDURE

### Selection and Pacing of the TV Presentation

A variety of film and TV presentations containing mild emotional persuasive appeals were examined in order to find one which would be amenable to a systematic process of increasing the rate of pacing. The TV presentation selected was originally a film entitled Neighbours, which was directed and produced by Norman McLaren at the Canadian National Film Board. Neighbours was viewed by Ss without its original sound track of music in the present experiment. (Appendix A).

Neighbours was deemed most appropriate by the experimenter for several reasons. The film contained a very low information sound track of only music and no dialogue. The experiment could therefore focus on the effects of fast pacing of visuals by eliminating the audio channel without losing the message of the film. Thus, the essential message was contained in the

visual channel and unwanted audio variable effects were controlled. This lack of dialogue in the film also contributed toward making it a subtly persuasive communication. It was felt that due to this important non-direct characteristic of the communication message, a fast paced version would not be too strong an appeal, but would rather be an effective moderate appeal. Additionally although the appeal could be considered rational in a sense, it primarily consisted of an "unreal" situation. The characters, set, and action, were all ingeniously created to appeal to and effect viewer emotions. One other very basic consideration in the choice of the TV presentation was that the film consisted of shots which had both an appropriate length and juxtaposition, as well as adequate performer and non animate object movement, so that the shortening of the original version could be accomplished without creating faster paced versions, which would appear to have jarring "jump cut" effects.

The "original" film version was transferred to 1/2" video tape on a Sony AV3400 recorder. All technical considerations were observed in order to obtain the highest transfer quality possible. The sixty-five film shots, which were contained in the "original"

version, were timed in order to have precise values for constructing the two shorter TV versions. The film shots were considered to be those discrete lengths of film which had their end points defined each time the camera position or camera lense changed. The "moderately" paced version was made by cutting each film shot by 1/3 its original duration at the frames considered most appropriate for retaining smoothness and continuity. The exact same ordering of film shots contained in the "original" version was maintained throughout the "moderate" version. This version was then transferred in an identical way, as was the "original" version, to 1/2" video tape. The film was then recut by 2/3 its "original" length in the same manner to produce the "rapid" version, which again contained the identical sequence of 65 shots. This version was also transferred in like manner to 1/2" video tape. (Figure I).

The original titles and credits of the film were eliminated for all versions so that communicator effects and/or communication variable effects would be excluded. All TV versions therefore opened and closed on the same TV shots and contained the identical TV shots throughout.

Attitude Questionnaire Construction

Thirty-one positive statements and thirty-one negative statements dealing with attitudes toward fighting and war were developed by the researcher and/or selected from standardized tests (Robinson et al 1968) and combined to form one sixty-two item questionnaire. Ninety high school students between the ages of fourteen and sixteen years of age were asked to complete the questionnaire marking their agreement or disagreement on a seven point Likert-type scale, to each of the sixty-two statements. Students were told that the questionnaire was part of a graduate student's research, and were assured by the experimenter that the questionnaire was to be filled anonymously. An item analysis was employed to discern which items were most reliable. A combination of both the highest statements and those deemed as being most appropriate in reflecting the content of the TV program were then selected and were combined randomly in order to form a thirty-two item questionnaire, containing equivalent positive and negative statements. (Appendix B).

The overall results revealed that the questionnaire of sixty-two statements contained an alpha coefficient of reliability of .92. (Appendix B, Table 1).

The results of the item analysis for the final questionnaire contained an alpha coefficient of reliability of .90 with all items having a correlation of .66> r>.31. (Appendix B Table II).

Interest Questionnaire Construction

Twenty-eight positive statements and twenty-eight negative statements were combined in one test form. The items dealt with interest by utilizing items concerned with the subcategories of viewer attention, enjoyment and overall evaluation of the TV presentation. Sixteen students between the age of twenty and twenty-two years of age were asked to complete the questionnaire after viewing the presentation, and to mark their agreement or disagreement with the fifty-six statements on a Likert-type scale of five intervals. Students were told that the questionnaire was part of a graduate student's research and were not asked for their names. An item analysis was employed and the ten negative and ten positive statements which produced the highest reliability were selected for the final twenty item questionnaire.

The overall results revealed the questionnaire of fifty-six questions contained an alpha coefficient

of reliability of .96. (Appendix C Table III). The final questionnaire consisting of twenty statements contained an alpha coefficient of .97 with all individual items having a correlation of $.91 > r > .72$. (Appendix C Table IV).

Research Design

The following research design was employed:

| | | |
|---|---|---|
| R | $O_{1,2}$ | Classic Control Group |
| R $X_1$ | $O_{3,4}$ | "Original" Version Treatment |
| R $X_2$ | $O_{5,6}$ | "Moderate" Version Treatment |
| R $X_3$ | $O_{7,8}$ | "Rapid" Version Treatment |

R = Randomized Selection of Subjects

X = Experimental Treatment

O = Administration of Post Test

Four groups were assigned randomly to three TV viewing treatment groups and one non-viewing control group. Each treatment group viewed only one of either the "rapidly", "moderately" or "originally" paced versions of the TV presentation. Ss in the three treatment groups were administered post attitude and interest questionnaires. Ss in the control group only completed the attitude questionnaire.

a) Sample

The sample consisted of five grade ten classes from Macdonald Cartier High School in Montreal. One hundred and twenty-three students were randomly selected and placed in three experimental groups and one control group. As the control group and two of the treatment groups contained one more subject than the third treatment group, one subject's data was randomly discarded from each of the four groups. Of the one hundred and twenty subjects, sixty-seven were male, fifty-three female, 24% were fourteen years old, 43% were fifteen years old, and 33% were sixteen years old.

Experimental Procedures

The experiment took place in four identical classrooms at Macdonald Cartier High School. Each room contained a 23" Sony video TV monitor. The programs were set up by a technician before the experiment began. A research assistant unaware of the study's objectives was present in the room to show the television presentation and to administer the post attitude and interest questionnaires. The assistant read the students the following introduction before beginning the experiment in each of the three treatment conditions:

> May I have your attention? I've been asked by an educational researcher from S.G.W.U. to read these instructions to you. Instead of having a regular class today what I would like to do is show you a TV program and then ask you to fill out two questionnaires. The questionnaires of course have nothing to do with your work at school but rather are part of some research being conducted by the Department of Education at S.G.W.U. Please don't write your name on the questionnaires as they are anonymous and please be sure to answer each statement on the questionnaires. If there are any technical questions as to how to fill out the questionnaires, I'll be happy to answer them. Any other questions will have to wait until the end of the class period.
>
> Alright? Here's the TV program. ...

The equivalent statement was read to the control group except that the viewing of the TV program was not mentioned.

## Statistal Procedures

Marginals were first generated for all data to produce means and standard deviations for all groups. One single classification ANOVA was employed to determine if any different effects existed between groups on the attitude questionnaire measure and another single classification ANOVA was employed to determine if different effects existed between groups on the interest questionnaire measure. Honestly Significantly Difference (HSD) Tests were then computed on all means for all groups for all

items of both questionnaires, to discover where significant differences existed. A value of $p < .05$ was required for significance for all reported data.

# Chapter 5

## RESULTS

### Effects of Pacing on Viewers' Attitude Scores

The total Ss for each of the four groups was n = 30. The means and standard deviations on the attitude measure for the three treatment groups and the control group which yield a total of N = 120 are shown in Table I.

TABLE I

Means and Standard Deviations for the Three Treatment Groups and the Control Group of the Attitude Measure

| Groups | n | Mean | Standard Deviation |
|---|---|---|---|
| Control | 30 | 132.60 | 30.84 |
| Original | 30 | 171.67 | 12.09 |
| Moderate | 30 | 188.33 | 13.70 |
| Rapid | 30 | 193.30 | 15.92 |
| Total | 120 | 171.48 | 30.78 |

Table II illustrates the results of the single factor ANOVA for the three treatment group means and the control group mean. The analysis of variance revealed significant overall effects between the four groups.

TABLE II

Single Factor ANOVA on the Four Group Means of the Attitude Measure

| Source | Sum of Squares | df | Mean Squares | F |
|---|---|---|---|---|
| Between Groups | 68155.09 | 3 | 22718.36 | 59.08* |
| Within Groups | 44608.83 | 116 | 384.56 | |
| Total | 112763.93 | 119 | | |

*$p < .001$

Since significance between the four groups was found, a HSD Test (Kirk, 1969) was applied to all means to determine which were significant at $p < .05$. (Table III).

TABLE III

Application of the HSD Test to the Four Group Means of the Attitude Measure

| Group | Mean | $X_1$ | $X_2$ | $X_3$ | $X_4$ |
|---|---|---|---|---|---|
| Control | $X_1$ 132.60 | | 39.07* | 55.73* | 60.70* |
| Original | $X_2$ 171.67 | | | 16.66* | 21.63* |
| Moderate | $X_3$ 188.33 | | | | 4.97 |
| Rapid | $X_4$ 193.30 | | | | |

* $p < .05$ Honestly Significant Difference at .05 = 13.17

* $p < .01$ Honestly Significant Difference at .01 = 16.11

The application of the HSD Test indicated that all three experimental treatment means were significantly different from the mean of the classic control group. The HSD Test also revealed that both the "moderately" paced TV version and the "rapidly" paced TV version were significantly different from the "originally" paced version.

The direction of the difference in both cases of significance, indicates that all treatment versions were effective in changing viewer attitudes, and that

the "moderate" and "rapid" versions were superior to the "original" version in changing viewer attitudes, in the direction of the message advocated by the TV presentation.

The HSD Test applied to the four groups at $p < .10$ did not reveal a statistical difference between the "moderate" and "rapid" paced versions. The differences in means though does indicate a direction which slightly favors the greater effectiveness of the "rapid" version over the "moderate" version.

Effects of Pacing on Viewers' Interest Scores

The means and Standard deviations on the interest measure for the three treatment groups and the control group which have a total of N = 120 are shown in Table IV.

TABLE IV

Means and Standard Deviations for the Three Treatment Groups of the Interest Measure

| Groups | n | Mean | Standard Deviation |
|---|---|---|---|
| Original | 30 | 68.47 | 19.31 |
| Moderate | 30 | 65.93 | 15.69 |
| Rapid | 30 | 71.20 | 15.65 |
| Total | 90 | 68.53 | 16.92 |

Table V illustrates the results of the single factor ANOVA for the three treatment group means. The analysis of variance revealed no significant differences on overall effect ($p < .05$; $df = 2$) between the three groups.

TABLE V

Single Factor ANOVA on the Three Treatment Group Means of the Interest Measure

| Source | Sum of Squares | df | Mean Squares | F |
|---|---|---|---|---|
| Between Groups | 416.27 | 2 | 208.13 | .723 |
| Within Groups | 25060.13 | 87 | 288.05 | |
| Total | 25476.40 | 89 | | |

Because of the investigative nature of this study it was considered worthwhile to subject the treatment group means to further analysis in order to discover whether there were any particular items in the twenty item interest questionnaire which did show significant differences. An ANOVA and a HSD Test were therefore employed on all group means for each of the twenty items. Significant differences were found on three items.

The group means and standard deviations of these three interest items and the results of the HSD Test are shown in Table VI.

TABLE VI

Application Of The HSD Test To The Three Attention Items Of The Interest Measure

| Item | Group | SD | Mean | $X_1$ | $X_2$ | $X_3$ | HSD Value |
|---|---|---|---|---|---|---|---|
| 4 | Original | 1.21 | $X_1 = 2.70$ | | .97* | 1.97* | HSD At |
| 4 | Moderate | 1.12 | $X_2 = 3.67$ | | | 1.00* | .05 - .69 |
| 4 | Rapid | 1.02 | $X_3 = 4.67$ | | | | |
| 6 | Original | 1.23 | $X_1 = 3.27$ | | .33 | 1.10* | HSD At |
| 6 | Moderate | 1.10 | $X_2 = 3.60$ | | | .77* | .05 - .68 |
| 6 | Rapid | 1.00 | $X_3 = 4.37$ | | | | |
| 7 | Original | 1.01 | $X_1 = 3.87$ | | .24 | .53 | HSD At |
| 7 | Moderate | 1.89 | $X_2 = 3.63$ | | | .77* | .05 - .63 |
| 7 | Rapid | 0.86 | $X_3 = 4.40$ | | | | |

* $p < .05$

The HSD Test revealed that for both viewer attention items 4 and 6 the "rapid" version had a significantly greater

effect than the "original" version in increasing interest scores. The "moderate" version was also shown to be significantly more effective for item 4 than the "original" version. Attention Item 7 indicates that the "rapid" version was significantly superior to the "moderate" version in increasing viewer interest scores.

The results of the interest measure clearly show that the only significant differences obtained were with viewer attention items and these favored the superiority of the faster paced version. In one case the "moderate" version was equally as effective as the "rapid" version.

# Chapter 6

## DISCUSSION AND CONCLUSIONS

The purpose of this study was to assess the effects different rates of pacing had on viewer attitudes and interest in order to systematically select an estimate of the optimum pacing rate for the particular communication situation. The optimum pacing rate was considered to be that rate which had both the greatest effect in changing viewer attitudes toward war and fighting, and which maintained highest viewer interest in the TV presentation. The discussion and conclusions which follow are organized under a re-examination of the original hypotheses in the light of experimental results.

### Discussion and Conclusions

Hypothesis 1: Subjects viewing the TV presentations will show significantly higher attitude scores than subjects not viewing the TV presentation.

Results affirm hypothesis 1 showing significantly greater scores ($p < .05$) on the attitude questionnaire measure for all three treatment groups as compared to the non viewing control group. It can therefore be concluded that for the particular grade ten high-school students under study, the appeal was effective. Unfortunately, due to a lack of resources and time the present study was not able to examine audience characteristics more fully. For example, it might have been particularly informative to have measures on subject "persuasability" as well as subject attitudes toward ITV instruction in schools. These and other audience variables can strongly influence research on pacing. With these limitations mentioned it can be concluded that the emotional persuasive appeal proposition suggested by Hovland and others is supported by the present experimental results and in particular its integrity is maintained for the TV medium when a high visual channel information presentation is used.

It is important to note further, however, that it is support for a proposition that has been affirmed, and that the proposition is subject to other communication process variable effects such as may exist in

the characteristics of the communicator, the message, and the medium. The existence of a communicator in the TV presentation was not an obvious event. Rather than one or more communicators presenting an argument, as is often the case in a persuasive appeal, this experiment's TV presentation had two main characters, who without dialogue played out an action filled drama. Most evidence appears to suggest that the ability of the audience to identify with or desire the social life and/or background of a communicator lends effectiveness to the persuasive appeal. This proposition was not supported by the experimental results. In the present experiment the audience consisted of high-school students while the communicators were "established" suburban men. What perhaps occurred in the present experiment was that through an action drama containing no dialogue and with a complete lack of obvious attempts to persuade the audience, the conflict which results from audience and communicator differences was relieved. Moreover the emotional highly visual story may also have helped transcend these typically separating defenses to message acceptance, reaching a common ground between the two groups.

Because subjects filled out the questionnaire independently following the viewing of the TV presentation it is only possible to hypothesize what the effect of social relations would be on the apparent effectiveness of the appeal. It is possible that the discrepancies between the audience and communicator could become more apparent on social interaction, thereby somewhat negating the original effects. Without systematically numerically weighting the basic variables effecting audience response, by having a great deal of replication of studies in this area, it is difficult to attribute relative strengths to the basic process variables. For example if the question is posed as to whether a similar result on the attitude measure would have been found if the medium used had been film, what must be considered at least are the characteristics of the two medium "experiences" as well as viewer predispositions, i.e., their overall attitudes toward these two mediums.

It is therefore concluded that clear description of the actual characteristics of the communication components of the particular situation is important for research conducted in this area. In the present case this has meant that special care was directed particularly toward the description of the TV presentation. It is

in this way that systematic categories of TV presentations can be identified. A lack of inclusion of this information in research reports delays any accurate attempts toward classifying programs and advancing production variable research.

Hypothesis II: Increasing the rate of pacing the TV presentation will increase viewers attitude scores.

Results support hypothesis II showing that both the "moderately" paced version and the "rapidly" paced version, did produce significantly greater attitude scores than the "original" slower paced version. Although there is no significant difference between the "rapid" and "moderate" versions, the "rapid" version's mean score does suggest that it was somewhat more effective than the "moderate" version in producing greater attitude change in viewers.

These results clearly indicate that for the particular experimental materials utilized, and within the limitations of this experimental situation, pacing influenced viewers' affective film "experience". Thus manipulation of pacing resulted in a different audience response to the faster paced versions as compared to the "originally" paced version. It can therefore be inferred that viewers perceived the faster paced TV visuals

to have more intense meanings than the "original" version. It is concluded that the more intense meaning produced by the faster versions contributed to produce greater attitude change in viewers. The results support Penn's (1971) study and most certainly tend to support for the TV medium, that vast theoretical body of film knowledge which has maintained that the editing process is central to the filmmaking process.

In regard to the medium's experimental character, results showed that it was possible to evaluate the affective TV "experience" in terms of an attitude measure. To the experimenters' knowledge this was the first time in ETV that such an effect of pacing was measured by means of an attitude scale. That it was possible to do so in the present experimental situation and that it is the only TV experimental evidence in this area, suggests that comprehensive replication of the study is necessary. Whether the same materials would produce equivalent results with different viewers is not known, nor can it be accurately predicted that the same results would necessarily occur with another form of a mild emotional appeal. In the experimenter's opinion there remain too many variables in this new area which are still unidentified, and which affect the

particular communication situation. Adequate generalization will only be desirable at such time as the major components of the communication process are more clearly identified and categorized.

Replication of the study should evolve along at least the following two directions. Besides similar short specific studies, like the one conducted, the long term effects of fast pacing of high visual ETV programs should be examined. Long term effects could be assessed by producing a series of lessons containing the information of a full high-school course, while the effects of short term studies can be examined and used as motivational devices in classes. In the latter case the TV presentation becomes a part rather than the whole of an instructional lesson.

Although there was no overall increase in the interest measure as the attitude measure increased, the three items which did show significant effects, were statements dealing directly with viewer attention. It is reasonable to expect that although significant differences in attention of viewers did not produce significant differences in the interest measure as a whole, they did contribute to the effect of significant differences on the attitude measure. In summary, the use

of a fast non constant mode of pacing in this experiment produced greater attitude changes, as compared to an "originally" slower paced version, due to both increasing viewer attention and by creating an affective film "experience" which was perceived by viewers as being more meaningful.

Hypothesis III: Increasing the rate of pacing the TV Presentation will increase viewers' interest scores.

As previously reported no significant differences were found between viewer interest scores in the three TV viewing treatment groups. Nevertheless, it is important to note that three of the twenty items which were significant dealt directly with viewer attention. Most of the other items examined either viewers' enjoyment or overall evaluation of the TV presentation. The items which dealt with attention and showed significant differences were numbers 4, 6 and 7. (Interest Questionnaire, Appendix C, Table IV).

These three items indicated in all cases that the "rapid" version was significantly more effective in increasing attention as compared to the slower paced versions. In all cases the "rapid" version showed its superiority

over the "moderate" version and in two cases over the "original" version. The "moderate" version also produced significantly greater attention scores than the "original" version for item number 4. This result lends support to the previous experiments conducted by Berlyne (1951) and Guba et al (1964), and in particular extends the theory to include the dramatic TV presentation used.

Although viewer attention increased with the more rapid presentations of visual stimuli, viewer enjoyment and overall evaluation of the TV presentation did not increase. Thus in this particular communication process situation interest was not causally related to attention. Furthermore, closer examination of individual enjoyment items suggests no trends toward a causal relationship. In the same way results indicated that the increase in attitude change did not produce a subsequent increase in viewer enjoyment and overall evaluation of the communication. This result clearly negates two of the three previous relationships between attention and interest, which Hovland (1953) considered as possible phenomenan. The remaining relationship suggested that interest sometimes arises primarily from the relationship of viewer interest in the TV presentation message material

itself. It is therefore most likely that this was the dominating effect in the present experiment, Thus it is concluded that although the TV "experience" was manipulated, it was not manipulated in such a way as to enhance viewer enjoyment.

At present a discussion concerning the characteristics of communication process wherein increased viewer attention would produce a subsequent increase in viewer interest must necessarily be highly hypothetical. In the present experiment there was no reason to believe that high school students would not be interested in the kind of "anti-war" message contained in the TV presentation. It could be supposed that an increase in attention, having not produced an increase in enjoyment in the present experiment, was in part due to an already existing viewer interest in the material. A causal effect may perhaps be more easily distinguishable in a communication situation where viewers are less favorably predisposed to the material. It is interesting to note that although there was no increase in viewer enjoyment there was also no decrease. This final result indicates the possibility that there may have been certain limitations inherent in the interest measure employed to evaluate viewer enjoyment. While research in this area may provide evidence that causal relationships do exist

between attention and interest, the experimenter is of the belief that such relationships are more likely to occur in the direction of interest causing attention rather than the opposite.

The primary purpose of this research was to attempt to find an optimum pacing rate for the particular communication process components. An optimum estimate of the most effective pacing rate for the TV presentation requires making a systematic compromise between the two dependent measures. Although the "moderately" paced version was paced at a rate sufficient to produce a significantly greater effect on the attitude measure, it did not increase overall interest and only showed differences on one attention item. In the present experimental situation increasing attention favored the "rapid" version, while increasing attitude change favored a pacing rate somewhat less than the "rapid" version. The present situation therefore indicates a close though not absolute relationship between the pacing rate which optimally effects viewer attitudes and the one which maintains highest viewer interest. Future research should attempt to evaluate the characteristics of the variables in the communication process which produce results either increasing or decreasing

this discrepancy. In conclusion, it is suggested that the most effective rate of pacing lies between the "moderate" and "rapid" paced versions. More specifically, the estimate of the critical point exists considerably closer to the "rapid" version than to the "moderate" version.

Recommendations for Future Research

The lack of empirical research in the editing of visual media presentations, particularly in television, clearly indicates a need for long term systematic research in this area. The significantly different effects obtained in the high visual TV presentation situation indicate that, the potential of the visual channel of the TV medium for affective learning is an important area for future study.

A prerequisite step in discovering the effects of editing techniques is to attempt to identify and clarify those variables which appear to be primary to the editing process. The present experiment has selected only the one variable of pacing visual images. A more extensive list would have to attempt to identify other variables existing in the editing process. The task of identification and definition is complex and involves an

assessment of other production variables, yet the production of visual educational media programs requires systematic identification in order to be able to develop a set of principles which are a utility to the ETV producer.

Pacing itself should be diligently explored. At present there are so few studies in this area that any replication and/or variation of studies is absolutely necessary if well grounded principles are to be developed. Research in the areas of accelerating, decelerating, constant and non constant pacing modes need to be conducted.

Replication is required not only at different age levels but also with different types of television programs. Would the same results be obtained for example if the TV presentation dealt with a human-psychological program, as compared to an action packed story? Would the same results be obtained on an hour long program as were found on these shorter TV presentations? Would a rapidly paced TV presentation with only non-animate objects and no characters have the same effect on viewers' attitudes as in the present study? What are the effects of fast pacing over longer periods of time? For example, would a series of rapidly

paced programs maintain the same increased viewer attention or does the human perceptual system quickly adapt to the stimuli in such a way as to negate its present effect?

Meticulous caution must be observed so that editing variable studies do not contaminate their methodological design with other already identified production variables. Researchers must also always be open to accepting and identifying hitherto unidentified variables. Too strong an inclination to explain effects only in terms of present communication models negate cognizance of the existence of the actual effects occurring.

In sum, there are an infinite number of questions which require research into this virtually unexplored area. Both long term research conducted to identify and clarify editing variables and replication are required, in order to develop accurate propositions concerning editing techniques.

## Summary

TV production variables are those separate definable elements which combine to form the whole of a TV presentation. The production variable which was manipulated

in this study was pacing. Pacing is that part of editing a TV presentation which deals with the length of each individual shot and therefore the rate of presentation of the individual film shots.

The important role editing plays in filmmaking was examined. Due to the lack of evidence available on editing TV presentations, attention was focused on a variety of noteworthy visual media studies as a rational approach to developing pacing hypotheses for the TV medium.

The purpose of this study was to attempt to discover an estimate of an optimum rate of pacing for a high visual information mild emotional appeal television program. The optimum rate of pacing was considered to be that one which produced the greatest viewer attitude change and which maintained highest viewer interest.

Experimental evidence investigated suggested that viewer attention to visual image stimuli increases as the rate of presentation of the images increases. Evidence also suggested that quickly paced visuals produce more active and potently perceived meanings for viewers. Experiments conducted in persuasive communication indicated that mild emotional appeals were often more effective than both rational and strong emotional appeals

in changing viewer attitudes. It was noted that these general propositions must necessarily be modified depending on the particular communication attributes of the communicator, message, audience, and medium of the particular situation. It was supposed that the TV presentation used in the study would effect viewer attitudes, and that the faster paced versions would produce a greater attitude change and would maintain a higher viewer interest on the TV presentation than the slower paced versions.

A mild emotional appeal which was originally a Canadian National Film Board film was selected on the basis of attributes which were amenable for the experimental purpose of developing three differently paced versions of the TV presentation. The film was cut to three versions which were transferred to video tape. Each version contained the same number of film shots in an identical sequence but the "moderate" version was 2/3 the length of the "original" version and the "rapid" version was 1/3 the length of the "original" version.

A seven point scale, thirty-two item attitude questionnaire measuring attitudes towards war and fighting was constructed by the experimenter containing an alpha

coefficient of reliability of .90, with N = 90. A five point scale, twenty item interest questionnaire measuring attention, interest, and overall evaluation of the TV presentation was also constructed containing an alpha coefficient of reliability of .96, with N = 16.

One hundred and twenty Grade ten high-school students were selected from Macdonald Cartier High School in Montreal and randomly assigned to three TV treatment groups and one non-viewing control group. Each treatment group viewed only one TV version. The attitude questionnaire was administered to the three treatment groups and the one control group. The interest questionnaire was administered to the three treatment groups. Marginals were generated for all data to produce means and standard deviations for all groups. A single classification ANOVA followed by a HSD Test was employed for both the attitude measure scores and the interest measure scores.

Results showed a significant increase ($p < .05$) in attitude scores in the direction of the TV appeal for all treatment groups as compared to the control group. The "rapid" and "moderate" versions of the TV presentation showed a significantly greater effect ($p < .05$) as compared with the "originally" paced version

in changing viewer attitudes. Although there was a slight indication that the "rapid" version was more effective in changing attitudes as compared to the "moderate" version this result was not found significant. While results showed no overall significant differences ($p < .05$) on the overall interest questionnaire, three items specifically designed to deal with viewer attention showed significant differences. Attention was found to be significantly greater ($p < .05$) for viewers of the "rapid" version in all cases as compared to the "original" version and in one case the "moderate" version was also significantly greater ($p < .05$) than the "original" version. It was concluded that attention may have contributed to the faster versions significantly greater effect on the attitude measure but that a causal relationship between attention and interest did not exist in the present TV communication situation. The results indicated that the optimum pacing rate for producing the greatest effects on viewer attitudes and for maintaining highest viewer interest existed between the "moderate" and "rapidly" paced versions and was somewhat closer to the "rapid" version.

Suggestions made for future research indicate that the neglect of the area to date requires long term

systematic identification and clarification of editing variables. Additionally the types of TV presentations, audiences, communicators, messages, and mediums used in editing variable experiments, must be described with the greatest attention to detail. A considerable amount of replication of existing studies is required, if accurate propositions are to be developed which can be of utility for the ETV producer.

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# APPENDIX A

## DESCRIPTION OF THE TV PRESENTATION

The message the TV presentation conveys is: The result of letting desire get in the way of loving your fellow man is ultimately total destruction of life and self.

The main characters are two married suburban men who appear on the screen, sitting on lawn chairs next to each other, reading their newspapers, and enjoying the tranquility of the day. Their "neighbourly" friendship is soon expressed as one man fills his neighbour's need to "light" his pipe. They appear satisfied, "wrapped up" in the discouraging world situation indicated by their newspapers, until to their surprise a flower appears to grow up before their eyes on the imaginary dividing line of their respective properties. They both take delight in the beauty and fragrance of the flower until their desire for sole ownership of the flower causes them to build fences to protect what each feels is rightfully his. It is not long before a more serious fight begins which rapidly escalates into a savage destruction of their homes, their families, and finally themselves.

# APPENDIX B

## ATTITUDE QUESTIONNAIRE

Please reply to each statement expressing your agreement or disagreement by marking an "X" in one of the spaces following each statement.

Mark "X" in SA is you strongly agree (SA) with the statement.

Mark "X" in A if you agree (A) with the statement.

Mark "X" in MA if you mildly agree (MA) with the statement.

Mark "X" in U if you are undecided (U) about the statement.

Mark "X" in MD if you mildly disagree (MD) with the statement.

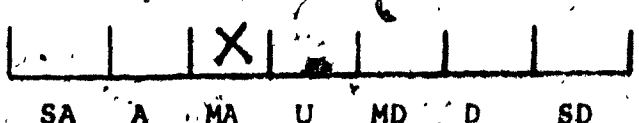
Mark "X" in D if you disagree (D) with the statement.

Mark "X" in SD if you strongly disagree (SD) with the statement.

SAMPLE STATEMENT:

Our lakes and forests should be protected.

If you mildly agreed with the above statement you would mark an "X" in space MA.



1. People should not fight for material wealth.

SA A MA U MD D SD

2. I don't mind being killed for my country.

SA A MA U MD D SD

3. People must learn to love each other.

SA A MA U MD D SD

4. If our country was at war I would offer my services in whatever capacity I could.

SA A MA U MD D SD

5. Our country is more important than other countries.

SA A MA U MD D SD

6. Our country must try to build deeper friendships with other nations.

SA A MA U MD D SD

7. It is not important whether people fight or not.

SA A MA U MD D SD

8. I would not fight in a war.

SA A MA U MD D SD

9. Competition and fighting between persons is good for progress.

SA A MA U MD D SD

10. War is acceptable as long as you feel you are killing for the right reasons.

SA A MA U MD D SD

11. People have to try harder to get along with each other.

SA A MA U MD D SD

12. War has no beneficial value.

SA A MA U MD D SD

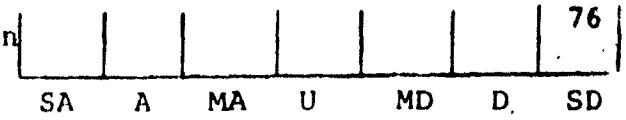
13. Our country should give up trying to be on friendly terms with other nations.

SA A MA U MD D SD

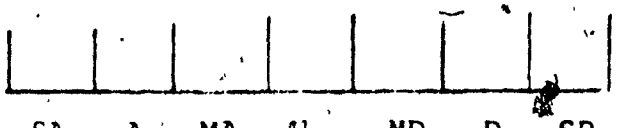
14. No duties are more important than an individual's duty to his country when it is at war.

SA A MA U MD D SD

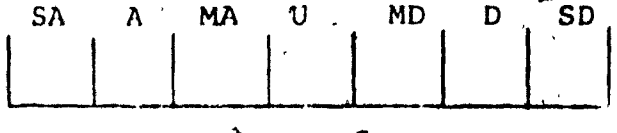
15. There is no conceivable justification for war.



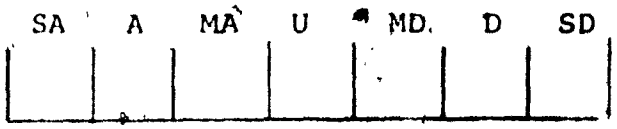

16. People should try to stop fighting with each other.



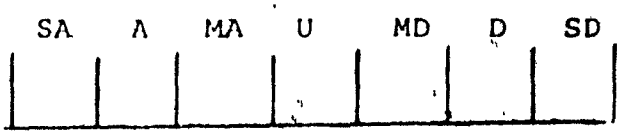

17. Some human beings are more important than others.



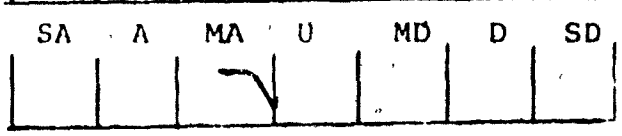

18. If my country was at war I would fight and kill other people.



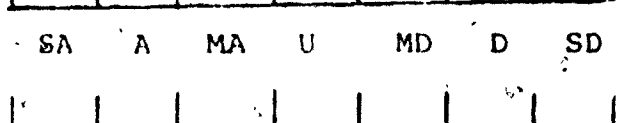

19. Fighting brings out an honourable human quality.



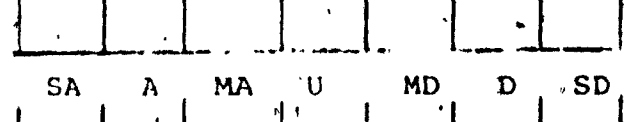

20. People must fight to get their share of material wealth.



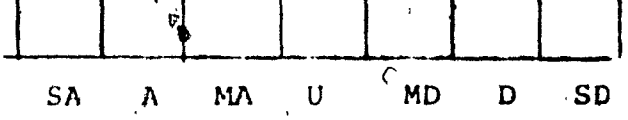

21. There is nothing people can do to improve their relationships with their neighbours.



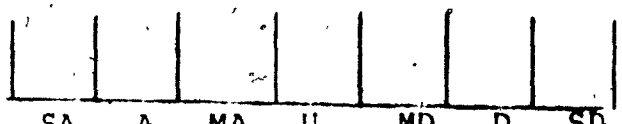

22. I would rather be called a coward than fight.



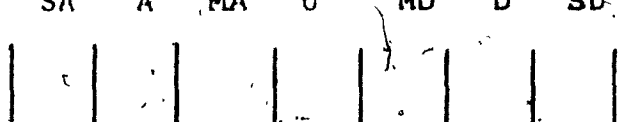

23. We should try to get even with any nation that tries to take advantage of our country.



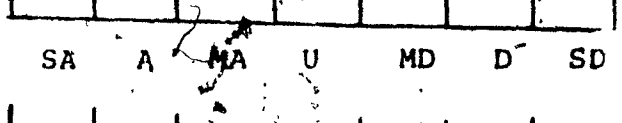

24. War only destroys the beauty of living a peaceful life which could be enjoyed by all nations if peace was their aim.



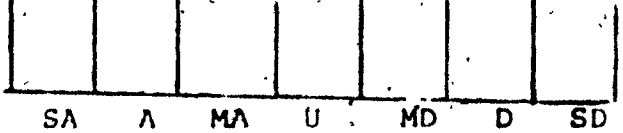

25. We should be willing to fight for our country without questioning whether it is right or wrong.




26. Our country should cut down the money it spends on weapons.




27. People should sincerely try to love the human beings they are in contact with.



28. People should refuse to fight if their country declares war.

29. Our country must at all costs try to stop war from breaking out.

30. It is contrary to my moral principles to participate in war and the killing of other people.

31. Fighting over wealth brings unhappiness.

32. Fighting is sometimes justified.

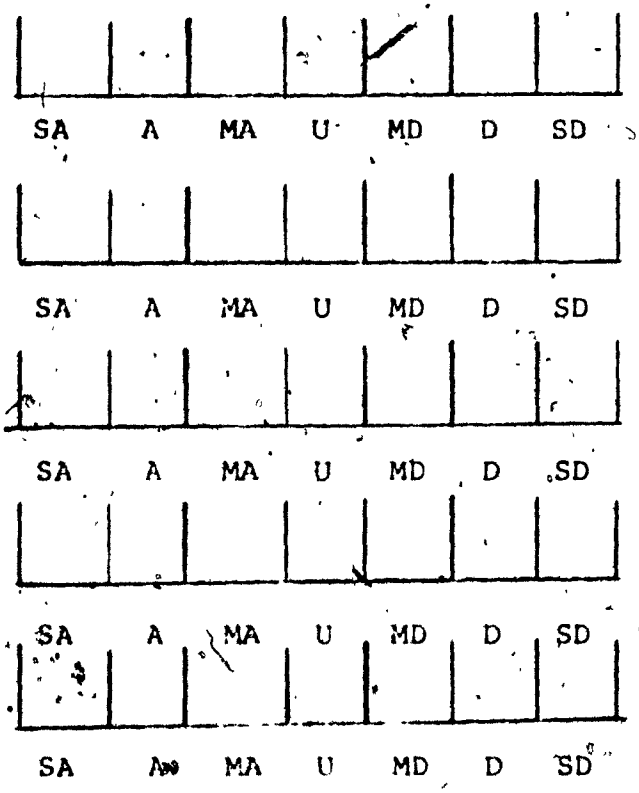


TABLE I

ITEM ANALYSIS (VELDMAN 1967) FOR PRELIMINARY 62 ITEM ATTITUDE QUESTIONNAIRE

| Item | Mean | R (Total) | Item | Mean | R (Total) |
|---|---|---|---|---|---|
| 1 | 5.44 | .4491 | 32 | 6.17 | .4675 |
| 2 | 4.37 | .2248 | 33 | 5.06 | .3198 |
| 3 | 6.01 | .3322 | 34 | 5.79 | .3657 |
| 4 | 4.82 | .4558 | 35 | 4.63 | .1298 |
| 5 | 4.46 | .4015 | 36 | 6.37 | .3075 |
| 6 | 4.14 | .2861 | 37 | 4.10 | .3342 |
| 7 | 6.20 | .3644 | 38 | 4.82 | .3554 |
| 8 | 6.28 | .2619 | 39 | 5.81 | .4923 |
| 9 | 3.41 | .3682 | 40 | 4.08 | .6178 |
| 10 | 6.09 | .3067 | 41 | 5.92 | .2429 |
| 11 | 4.48 | .4854 | 42 | 4.13 | .3677 |
| 12 | 5.49 | .4261 | 43 | 6.11 | .4262 |
| 13 | 5.37 | .6022 | 44 | 5.91 | .1854 |
| 14 | 4.54 | .4793 | 45 | 5.61 | .4884 |
| 15 | 4.27 | .4551 | 46 | 4.42 | .5369 |
| 16 | 4.28 | .3417 | 47 | 5.33 | .3229 |
| 17 | 5.93 | .4892 | 48 | 6.19 | .4403 |
| 18 | 4.52 | .6360 | 49 | 4.90 | .4271 |
| 19 | 6.29 | .4982 | 50 | 4.90 | .2219 |
| 20 | 6.40 | .4906 | 51 | 5.70 | .4174 |
| 21 | 5.00 | .5192 | 52 | 4.42 | .1731 |
| 22 | 5.98 | .5192 | 53 | 5.62 | .5739 |
| 23 | 6.58 | .4950 | 54 | 5.79 | .3661 |
| 24 | 4.86 | .4419 | 55 | 5.11 | .6102 |
| 25 | 4.83 | .4520 | 56 | 4.67 | .5886 |
| 26 | 4.69 | .3623 | 57 | 5.10 | .6413 |
| 27 | 5.78 | .4747 | 58 | 4.64 | .5735 |
| 28 | 4.39 | .2020 | 59 | 4.97 | .5481 |
| 29 | 6.34 | .1976 | 60 | 5.69 | .5391 |
| 30 | 4.59 | .4232 | 61 | 3.57 | .4240 |
| 31 | 6.33 | .2331 | 62 | 6.16 | .3291 |
| | | $\alpha = .9169$ | | | |

TABLE II

ITEM ANALYSIS (VELDMAN 1967) FOR FINAL 32 ITEM ATTITUDE QUESTIONNAIRE

| Item | Mean | R (Total) | Item | Mean | R (Total) |
|---|---|---|---|---|---|
| 1 | 5.44 | .4686 | 17 | 6.17 | .5007 |
| 2 | 4.46 | .4537 | 18 | 6.37 | .3176 |
| 3 | 5.49 | .4757 | 19 | 5.81 | .4837 |
| 4 | 5.37 | .6071 | 20 | 4.08 | .6410 |
| 5 | 4.54 | .4672 | 21 | 6.11 | .4265 |
| 6 | 5.93 | .4741 | 22 | 5.61 | .4893 |
| 7 | 4.52 | .6522 | 23 | 4.42 | .6025 |
| 8 | 6.29 | .4959 | 24 | 6.19 | .4295 |
| 9 | 6.40 | .5039 | 25 | 4.90 | .4439 |
| 10 | 5.00 | .5146 | 26 | 5.70 | .3695 |
| 11 | 5.98 | .5020 | 27 | 5.11 | .6365 |
| 12 | 6.58 | .4845 | 28 | 4.67 | .6428 |
| 13 | 4.86 | .5156 | 29 | 5.10 | .6655 |
| 14 | 4.83 | .4738 | 30 | 4.97 | .5516 |
| 15 | 5.78 | .4370 | 31 | 5.69 | .5476 |
| 16 | 4.59 | .4575 | 32 | 3.57 | .4395 |

$\alpha = .9036$

# APPENDIX C

## INTEREST QUESTIONNAIRE

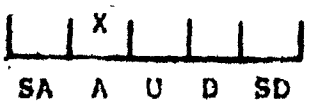
Please reply to each statement expressing your agreement or disagreement by marking an "X" in one of the spaces following each statement.

Mark "X" in SA if your strongly agree (SA) with the statement.
Mark "X" in A if you agree (A) with the statement.
Mark "X" in U if you are undecided (U) about the statement.
Mark "X" in D if you disagree (D) with the statement.
Mark "X" in SD if you strongly disagree (SD) with the statement.

SAMPLE STATEMENT:

The T.V. program was enjoyable.

If you agreed with the above statement you would mark an "X" in space A.



| | | |
|---|---|---|
| 1. | The program was great. | SA A U D SD |
| 2. | I did not consider the program interesting | SA A U D SD |
| 3. | The program was not worth watching. | SA A U D SD |
| 4. | I felt "wrapped up" in the program. | SA A U D SD |
| 5. | I thought the program was excellent. | SA A U D SD |
| 6. | I was absorbed in watching the program. | SA A U D SD |
| 7. | My attention wandered during the program. | SA A U D SD |
| 8. | I did not like the program. | SA A U D SD |
| 9. | The program did not make me feel involved. | SA A U D SD |
| 10. | I thought the program was fantastic. | SA A U D SD |
| 11. | The program was a pleasure to watch. | SA A U D SD |
| 12. | I did not enjoy watching the program. | SA A U D SD |
| 13. | The program was powerful. | SA A U D SD |
| 14. | The program was not exciting. | SA A U D SD |
| 15. | I felt I wasted my time watching the program. | SA A U D SD |
| 16. | I liked the fast moving program. | SA A U D SD |
| 17. | I lost interest during the program. | SA A U D SD |
| 18. | I was not involved in watching the program. | SA A U D SD |
| 19. | I thought the program was interesting. | SA A U D SD |
| 20. | The rapid sequencing of the program made it great. | SA A U D SD |

TABLE I

ITEM ANALYSIS (VELDMAN 1967) FOR PRELIMINARY

56 ITEM INTEREST QUESTIONNAIRE

| Item | Mean | R (Total) | Item | Mean | R (Total) |
|---|---|---|---|---|---|
| 1 | 4.44 | .1951 | 29 | 4.06 | .7680 |
| 2 | 3.31 | .1070 | 30 | 3.63 | .4670 |
| 3 | 4.31 | .6111 | 31 | 3.69 | .6605 |
| 4 | 4.44 | .6931 | 32 | 3.63 | .8796 |
| 5 | 3.44 | .644 | 33 | 3.75 | .8639 |
| 6 | 3.25 | .7096 | 34 | 2.81 | .8307 |
| 7 | 4.56 | .6767 | 35 | 3.44 | .7987 |
| 8 | 4.44 | .4061 | 36 | 4.19 | .6418 |
| 9 | 4.13 | .6161 | 37 | 4.13 | .5742 |
| 10 | 3.69 | .5180 | 38 | 4.00 | .7035 |
| 11 | 4.06 | .2045 | 39 | 4.19 | .8406 |
| 12 | 4.31 | .8971 | 40 | 4.06 | .6180 |
| 13 | 4.31 | .7701 | 41 | 3.56 | .8571 |
| 14 | 4.31 | .6612 | 42 | 4.13 | .7253 |
| 15 | 4.13 | .5739 | 43 | 3.81 | .7988 |
| 16 | 4.00 | .4491 | 44 | 4.31 | .4432 |
| 17 | 4.31 | .0763 | 45 | 4.00 | .5223 |
| 18 | 3.81 | .4101 | 46 | 4.19 | .7819 |
| 19 | 3.56 | .1030 | 47 | 3.81 | .6814 |
| 20 | 3 31 | .9098 | 48 | 3.75 | .6182 |
| 21 | 3.31 | .6447 | 49 | 4.13 | .6071 |
| 22 | 4.31 | .7596 | 50 | 4.31 | .8499 |
| 23 | 3.88 | .4149 | 51 | 4.25 | .3650 |
| 24 | 3.25 | .8709 | 52 | 4.25 | .7836 |
| 25 | 3.13 | .5244 | 53 | 3.81 | .7921 |
| 26 | 4.00 | .7199 | 54 | 3.75 | .4227 |
| 27 | 4.00 | .3305 | 55 | 3.94 | .5466 |
| 28 | 2.88 | .3941 | 56 | 3.44 | .7625 |

$\alpha = .9666$

TABLE II

ITEM ANALYSIS (VELDMAN 1967) FOR FINAL 20 ITEM INTEREST QUESTIONNAIRE

| Item | Mean | R (Total) | Item | Mean | R (Total) |
|---|---|---|---|---|---|
| 1 | 3.25 | .7481 | 11 | 3.44 | .7906 |
| 2 | 4.31 | .8632 | 12 | 4.19 | .8531 |
| 3 | 4.31 | .7241 | 13 | 3.56 | .8942 |
| 4 | 3.31 | .8996 | 14 | 3.81 | .7966 |
| 5 | 3.25 | .9098 | 15 | 4.19 | .7867 |
| 6 | 4.00 | .7363 | 16 | 3.81 | .6382 |
| 7 | 4.00 | .7363 | 17 | 4.31 | .8508 |
| 8 | 3.63 | .9039 | 18 | 4.25 | .8018 |
| 9 | 3.75 | .8951 | 19 | 3.81 | .8408 |
| 10 | 2.81 | .8647 | 20 | 3.44 | .7923 |

$\alpha$ = .9722