The influence of mass media exposure on literacy skills and comprehensive abilities.

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THE INFLUENCE OF MASS MEDIA EXPOSURE
ON LITERACY SKILLS AND COMPREHENSIVE ABILITIES

by

Lydia Donna Maria Romanow Beaudry

A Thesis
submitted to the Faculty of Graduate Studies
through the Department of
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ABSTRACT

THE INFLUENCE OF MASS MEDIA EXPOSURE ON LITERACY SKILLS AND COMPREHENSIVE ABILITIES

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Advancing communication technologies have developed media which communicate messages with audio-visual 'language' components. The formation of audio-visual messages and their corresponding comprehension differs from traditional English grammar constructions. It is felt that audio-visual communication encourages an immediate, holistic, sensual type of understanding, whereas communication via print follows a progressive and linear style.

It is likely that increasing exposure to these new forms of expression alters the more traditional perceptions and communication skills resulting from print modes. A test was designed in order to examine the differences between audio-visual and print communication and comprehension. The stimuli to be responded to were two story passages, both available in printed and audio-visual form.

Subjects having varying levels of practical media exposure were exposed to both a printed, and an
audio-visual stimulus. For both, subjects answered fill-in-the-blank statements and free-response questions which could reveal their comprehension of the two differently presented messages. A questionnaire was also completed.

Content analyses of the kind and amount of responses reveal the following. The audio-visual messages were easier to understand than the printed passages having the same content. There were fewer themes mentioned in response to the audio-visual message, however, these common trains of thought were expressed with greater descriptive variation than those in response to print. More references which were sensual and empathetic in nature were made to the audio-visual message.

Comprehensive abilities were then examined with respect to media exposure backgrounds. For example, it was found that the students having the highest levels of practical media exposure comprehended the audio-visual and print messages more easily than those students having lower levels of exposure.

Further observations are made regarding the influence of different media backgrounds on the quality and quantity of subject responses to the print and audio-visual stimuli of the comprehension test. Observations are also made regarding three presumed levels of audio-visual sophistication—audio-visual 'buffs', critics and producers.
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As well, special thanks to my husband Richard for his support, to my father, Dr. Walter Romanow, who initiated and encouraged my interest in this area, and to my mother, Yvonna Romanow, for her painstaking efforts in typing several drafts and the completed work.
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CHAPTER I

INTRODUCTION

A current trend in mass communication research is technology assessment, whereby the social implications of advancing communication technologies are examined. The recognition of technology acting as a catalyst for social change is important, especially when the public spends increasingly more time with electronic communication. Social and personal interaction with mass media has become the norm.

The potential effects of this accustomed lifestyle on the seventies' society are enormous. The specific area to which this thesis is devoted, is how mass media exposure influences literacy skills and comprehensive abilities. Traditionally, the primary mode of communication has been the printed word. More recently, electronic communication has evolved audio-visual messages which are habitually received by the viewing public. Conventional written literacy skills may be developing differently than in the past and may be playing different roles because of the rise of electronic, audio-visual skills.
The implications of electronic communication need to be examined in order to make constructive use of media. Well thought-out utilization of their strengths is necessary for curbing the potentially negative influences of the increasingly pervasive electronic media. Man "has a responsibility to use his knowledge at least in part to shape in turn the media that shape him."¹

It is further felt that,

Without a shrewd appreciation of what the media can and cannot provide and an understanding of the techniques and limitations that apply to the media, we stand in danger of being misled through expecting the impossible and accepting the improbable.²

In order to gain understanding, the characteristics, capabilities and implications of audio-visual and print communication will be examined in this thesis. A comprehension test has been conducted. It reveals the audio-visual and written comprehensive styles and abilities of respondents having varying amounts and kinds of media exposure. Findings and observations will be discussed in relation to the literature reviews which follow the Introduction.

The thesis' analyses and discussions are intended to increase understanding of the components and capabilities of audio-visual (A/V) communication. The influence of A/V expression on traditional literacy skills and
educational processes is a major issue throughout the thesis.

A common statement is that television viewing is responsible for declining writing and reading skills. If the lower rates do exist, they are not wholly due to high television viewing. However, it is inevitable that daily interaction with electronic audio-visual media has environmentally altered communication skills. Exposure to different modes of expression can influence individual communication skills, which in turn, can alter the expectations and roles of the institutions surrounding the individual.

The mass media, having acquired greater transmitting capabilities, have themselves become institutionalised. They have acquired the social roles of entertainers, informers and educators. By assuming these roles, the electronic environment has challenged the status quo of a vital social institution—the educational system.

Schools used to have a virtual monopoly on information, now they are part-time competitors in the electronic information surround.3

An average student's hours of interaction with mass media usually outnumber the hours spent in school over a lifetime. More recent generations have never lived without consistent exposure to advancing electronic relayers of information. Student perceptions and
expectations are inevitably different than they were even ten years ago. A different 'breed' of student is developing.

The new learner, who is the product of the all-at-once electronic environment, often feels out of it in a linear, one-thing-at-a-time school environment.\(^4\)

Society and its institutions are caught in a state of transition. Educational norms, expectations and standards of relevancy are often in conflict. In order to clarify and coordinate these factors, it is important to examine primarily the characteristics, strengths and weaknesses of developing technologies. In this case, advancing forms of communication will be discussed and examined in order to understand their potential effects, as well as to rationalize current conditions and propose future alternatives.

The characteristics and implications of electronic, audio-visual communication are discussed in the two following chapters. The relevance and importance of this media exposure issue will be rationalized. The need for studying this area is well stated by McLuhan, who claims that,

... if the mass media are permitted only to weaken previously achieved levels of verbal and pictorial culture, it won't be because there's anything inherently wrong with the media but because society failed to master them as new languages and 'assimilate them into its cultural heritage'. ... It is depressing to admit that the constructive potential in the electronic media has been so little developed, so cruelly perverted.\(^5\)
In order to understand the potential of electronic audio-visual media, their mechanics, characteristics and influences will be examined.
FOOTNOTES--INTRODUCTION


4 Ibid., 201.

CHAPTER II

THE 'LANGUAGE' OF AUDIO-VISUALS

This chapter discusses both the physical characteristics and 'grammar' of audio-visual communication, and the consequences of learning via this mode.

Electronic media are developing means of communication which are not structured by conventional English grammar, but instead, by audio-visual components. An approach taken to analysing the metaphorical 'language' of film suggests the major components of the film rhetoric to be the 'languages' of picture, motion and sound. Within these categories, factors such as framing, composition, camera movement, editing, dialogue, sound effects and lighting may be utilised and combined in a number of different ways to relay a particular message or induce a particular mood. (An ideal example of the effective use of audio-visual components is the film, An Occurrence at Owl Creek Bridge, from which a segment was chosen as a stimulus for the thesis' comprehension test.)

When applied in a particular way, the audio-visual format is an instrument of learning. Its attention-getting devices prove to be successful when
it is shown that,

among the first learning experiences impressed upon a preschooler's mind are (these) ad slogans and jingles. Through repetition, interesting visual presentation, brevity, simplicity, clarity and entertainment-values, the child learns product names and trademarks before he learns the alphabet.¹

When this advertising format is applied more specifically to the learning situation, it can also be successful. A prime example is the production of Sesame Street, its lessons being packaged in one-minute clips which are deliberately designed to resemble commercials.

In putting together "Sesame Street" we are trying to educate the children in an entertaining manner by using those elements we know hold their attention. They are taught the alphabet, numbers, simple logic and decent behavior. The programs use cartoons, songs, games, animation, puppets, low-keyed hosts, and even 'commercials' to convey the concept of numbers or letters.

Again, the application of the component 'languages' of picture, motion and sound present information to be understood in an instantaneous and simultaneous manner. Furthermore, an awareness of other non-verbal communication such as body language results. This style of comprehension is different than that required by the progressive, linear flow of a printed message.

An important consequence of viewing material which follows Sesame Street format is that children become familiar with every filmic
device, such as jump-cutting, which conditions viewers to instant changes in time, place and action--often non-sequential. The fast pace and rate of change, increased by commercial interruptions and 'channel-hopping', influence a child's decreasing attention span and expectations in other learning situations. Viewers become accustomed to receiving information in a way which is generally different than what is offered in school.

A factor such as spread of vision while reading and viewing shows how an individual takes in information from different presentation formats. Linear, progressive thinking, reading from left to right, is natural with print, whereas scattered scanning and holistic perception is natural while viewing.

These observations are important for information programming as well. The electronic news industry uses these same audio-visual components and communication devices to inform the public of the world at large. With the current information 'overload' created by the faster and more pervasive transmission of information, the media systems attempt to relay as much factual (or fictional) information as time and economic factors allow. Information dissemination via newscasts has become a competitive televised production. The traditional news presentation format is now the 'brief item', the newscast being composed of rapid successions of short
narratives and visual aids. This condensation of information—bits and pieces of instantaneous and simultaneous audio-visual images—requires a more sensual, holistic, immediate style of comprehension than that demanded by print. (Also, the presence of non-verbally dynamic announcers can also add a new dimension to interpretation and understanding.)

This concept of the transmission of 'bits' of information is an important one, primarily when it is noted that there is generally a greater capacity on the part of the public to absorb information. With the continuous bombardment of information, the average media patron is acquiring a greater level of tolerance to massive amounts of information. More information can be absorbed. Experimental evidence indicates higher levels of performance in the retention of information. Retention estimates prior to this experiment were up to approximately 50 bits (1 bit = 1 monosyllable), whereas the absorption level in response to the experimental stimuli (pictures, words and short sentences) ranged from 384 to 669 bits of information.  

Therefore, the increasing capacity to receive, absorb and retain information seems characteristic of the presentation rates of information created by the technological revolution. Familiarization with events and discoveries such as space travel, transplants,
computers and holography further influences this conditioning to fast pace, social change and awareness of endless personal and social possibilities.

It becomes apparent then, how the 'new learner' comes to the information machine called school and he is already brimming over with information. As he grows, his standards for relevance are determined more by what he receives outside than what he receives inside.

the school system operating according to the straight line theory of development—a style of thinking and learning which is no longer conducive to students' increasing exposure to analogous styles of communication and rapid social changes.

A frequent academic complaint is a teacher's inability to get through to students and complete lessons according to previous planning. As one teacher indicates, "The trouble is their utter lack of background." Another teacher observes that

> the big difference now is, they have a sort of spattered shotgun approach to things, and that's the way they write. You used to rely more on their sense of logic, their ability to structure things.

It seems difficult though, to promote cohesive understanding when the norms for observing and learning have been acquired via somewhat fragmented presentations. The problem tends to lie not in the lack of experiential and knowledgable background, but instead, in the
acquisition of a background which is different than
the teachers', and different than the type of experience
the educational system has traditionally reinforced,
and catered to.

Information transmission is generally a different
process in schools than in media presentations. Learning
in school has traditionally followed the 'banking'
concept of education, whereby students sequentially
deposit information from narratives with the faculties
of their left-brain hemisphere. Exposure to audio-
visuals, however, enables one to vicariously experience
a situation or event. The comprehension of a gestalt
is a result of this experiential learning. This thinking
process relies on the functioning of the right-brain
hemisphere.

Both thinking styles have strengths and limitations.
When they are thought of, and are practised as, compatible
units, learning horizons can expand. Too frequently,
however, one or the other perceptual mode is suppressed
and learning opportunities are missed.

There is general agreement that reading and writing
techniques are valuable means of communication, of
organizing and exacting thought and disseminating
knowledge.

But, they are not the only tools. . .
Inordinate reliance upon print literacy
can cause other perceptual and communi-
cative skills to wither. . . 8
Audio-visual communication skills can be recognised by acknowledging the idea that film is very much like a language. People who are highly literate visually (or should we say 'cinematé'? ) see more and hear more than people who seldom go to the movies. An education in the quasi-language of film opens up greater potential meaning for the observer.

Learning experiences can expand by coordinating different communication modes and thinking styles.

It is important to realise that with changing environments, changing life patterns, changing home and school situations, and the changing problems and challenges facing today's youth, the function of schooling should be to prepare students for a future of accelerating changes by opening up new regions of thought and experience.

So we must persevere in teaching students how to read, but not solely the language of print. Students should also learn any other language which will accelerate mental activity and curiosity and thus pursue the broad goals of education.

Thus, in this age of enormous technological complexity, the educational system must confront and integrate the electronic environment so student comprehension of, and contribution to, the world at hand may increase.

The greater the number and variety of experiences, direct or vicarious, the greater our growth of mind. The greater the frequency of media and vicarious experience, the more deeply we expand our understanding.

With a function of education being "to help people
grow by helping them to use their minds,"\textsuperscript{13} it can be recognised that,

changing patterns of living, working and recreation require educators to prepare children for a much different world. There must be education... for continued growth, for a sense of personal responsibility.\textsuperscript{14}

The thinking processes developed in school are valuable when they make some critical differences in the learning and living experiences of the student. Learning experiences must be selected and organised in order to achieve social goals appropriate to the current needs and conditions of society. The scope of the curriculum must, therefore, develop according to these needs and conditions.

The characteristics of the outside world should become a part of the learning process in schools. A prominent part of the world beyond the classroom is the development of, and interaction with, new modes of communication and perception. School curricula should maintain social relevance by functioning within the context of the other social institutions, one of the more prominent being the mass media.

Media exposure and audio-visual skills, then, need not impede educational goals. Television viewing is capable of causing a decline in conventional literacy skills, but it should also be recognised that television and related forms of communication give the future of
learning its largest promise." The potential of audio-visual communication has not yet been fully realised and put to constructive use. An examination of the perceptual characteristics of audio-visuals follows this chapter in order to increase understanding of developing comprehensive and literacy skills.
FOOTNOTES—CHAPTER II


3 Ibid., p. 68.


6 Goldman and Burnett, pp. 31-32.


8 Goldman and Burnett, p. 54.


10 Goldman and Burnett, p. XIV-XV.

11 Ibid.


13 Goldman and Burnett, p. XIV.

14 Goldman and Burnett, p. 19.

15 "Reading War", p. 4A.
CHAPTER III

AUDIO-VISUAL PERCEPTION

In order to examine the potential effects of exposure to audio-visual media, it is important to discuss further the perceptual and comprehensive characteristics of visual communication. This discussion lays the foundation for the hypotheses of the thesis' comprehension test.

Visual images are sometimes difficult to describe, simply because the image must materialise in words—a mode which may inhibit image interpretation. In the act of communication, connotative meaning, impressions and sensations can be derived from audio-visuals. Although visuals are specific in detail, they allow room for personal insights, impact and interpretation. Words tend to restrict these perceptions.

This sensory style of visual perception appears to be the case in some studies. In one study, the "expected hierarchy of sense-impression responses was found. . . . The greater the input information, the higher was the proportion of sense-impressions." Visual and verbal combinations evoked more sense-impression responses than did picture, (with or without colour), and word alone. Greater connotative and
impressionistic understanding is a result of audio-
visual communication.

A visual image alone can evoke emotional, impres-
sionistic understanding. A symbol can sometimes encompass
several dimensions of a concept which, in verbal terms,
is more uni-dimensional. A simple example is the obser-
vation that

Language represents the concept of
marriage by one word; it does not
suggest a pictorial twosome. But
the concept itself refers directly
to two physical persons. ¹

Even via the use of non-verbal components in photography,
for example, the emotional relationship uniting two
people can be portrayed--by eye contact or in a close-
up of the couple's clasped hands.

Visual media would seem to be more capable of
easily arousing emotion or sensation. The tendency
is for emotions to be remembered prior to any content
related to an incident. Evidence of the type of impact
which is made is the following. A study examining the
effects of emotion-arousing events on children's
ability to learn from TV news found that the seventh-
grade subjects were able to recall the emotion-arousing
events better than the neutral events.²

If there is greater emotional involvement with
audio-visual media, and emotions make stronger impact
than content, it is likely that retention rates of audio-
visual content are higher than those for verbal content. A study examining recall and involvement with messages presented by different media combinations found that recall increases with additional channels of information. There was greater recall of the message presented via video-tape than by audio or print alone. It seems, then, that the higher rate of retention could be due to greater emotional involvement with an audio-visual presentation. In this particular study, "Higher recall does not, however, appear to imply any corresponding higher involvement in the material." Recall need not be dependent on involvement. This issue of involvement with audio-visuals will be further examined later.

Another difference between the reception of a visual and printed message is the time each stimulus requires for the processing of information.

Pictures yield faster inferences than do words when the same semantic information is required for performance. It has been found that 'meaning' can be extracted from a picture with exposure time (less than 100 msec) allowing for only one eye fixation. All details need not be visualised for meaning acquisition. Greater exposure time, however, inevitably leads to greater understanding.

The impact of any verbal description is delayed until the description is finished.
A picture, on the other hand, communicates an immediate impact.\textsuperscript{6} Thus, more information can be transmitted and absorbed faster via audio-visual means than by print.

A number of studies show that "recognition memory for pictures is essentially perfect."\textsuperscript{7} This pictorial advantage is partially due to the dual coding processes of pictures.

Paivio, Rogers and Smythe (1968) have postulated that pictures are coded and stored in memory in both a verbal form and a pictorial form whereas words are generally coded and stored only in a verbal form. They suggested that the probability of recall is higher for pictures than words (Shepard 1967) because the correct verbal response can be retrieved from either memory representation.\textsuperscript{8}

Thus, a verbal tagging of visual experiences is a basic storage process. However, as the complexity of a visual stimulus increases, the formation of image labels and the verbal coding may become inhibited.

The inherent detailed complexity of visuals is usually an advantage in the learning process. Simply because more information is being presented to the viewer, more information can be integrated and retained. With the provision of details, visuals give contextual clues such as posture, action, facial expression and physical surroundings which evoke connotative meanings. As an example, "two dirty urchins sitting amid rubbish, an elderly lady gazing out a
window, and grief-stricken girl holding her head in her hands" is a description which can represent several concepts. (In this particular case, it is family planning.) If this photo were to be supporting a newspaper article about a specific social issue, however, it could not provoke a common understanding of the particular concept. Conceptualization of the issue would be more cohesive if presented in the denotative verbal mode.

However, in terms of emotional impact, the example shows how the two or three-dimensional portrayal by visuals can be superior to the one-dimensional sequence of the verbal language.

This polydimensional space not only yields good thought models of physical objects or events, it also represents isomorphically the dimensions needed for theoretical reasoning. The total image or message develops via the interaction of several structural components which provide a cohesive context for thought.

The amount of involvement with a message will now be further examined. One study examines the amount of involvement with print and media by measuring brain-wave patterns. The brain waves covering the range of human arousal are, (from the height of arousal to the deepest sleep), Beta, Alpha, Theta and Delta waves. Briefly, the results show that,
the response to print generally may come to be understood as active, and composed primarily of fast brain waves, while the response to television might come to be understood as passive and composed primarily of slow brain waves. It seems that an intellectual attempt to learn is being made by the reading subject, whereas the same subject, while viewing, is very passive about television. This difference may be due to educational and social conditioning whereby certain media are expected to have primarily one function. Traditionally, print has provided information and television and film are generally expected to provide entertainment.

In the study, the subject read an advertisement and viewed TV commercials. Considering this exposure to similar content, it was stated in the findings that, "The basic electrical response of the brain is clearly to the media and not to content differences." Previous analyses of eye movement reveal that content which is easily learned requires little work on the part of the respondent, but content which communicates less easily requires greater active response on the part of the respondent. It can be understood, then, that the response to television is more passive simply because it is an easier form of communication. The audio-visual medium can provide more information in a more specific way. It communicates very
easily to the viewer. A rationalization of this notion is the following,

Linguistic signs can refer not only to particular objects, persons, places, etc. (e.g., Mount Everest, Richard Nixon), but also to more general categories and concepts (e.g. 'house', 'good'). In filmic communication, however, all image signs are concrete representations of particular objects, persons, places, etc. Unlike certain words, image-signs do not have an intrinsic generality of reference.14

It is for this reason, then, that respondents are also more likely to respond more easily to audio-visual material than to print. In visual terms the message can be 'spelled out' for the receiver by providing, for example, motion, a specific context, and by applying particular techniques (such as the zoom-in and close-up), which supplant mental skills. It has been found that

pictorial representation of stimuli tends to evoke more responses than verbal presentation of the same stimuli.15

These higher response rates suggest greater ease of comprehension. Furthermore, it would seem likely that greater experience and familiarity with the audio-visual lexicon would increase ease in comprehension of visuals. Audio-visual 'training', then would increase one's sensitivity to the electronic communication modes.

It also should be noted that the 'easy' communi-
cation of visuals and audio-visual media evokes greater variety in associative meaning than do words. The described relationships between concepts remain the same regardless of communication mode; however, the references given to the visual content are more varied. This is partially due to the derivation of impressionistic, connotative meaning.

An explanation for this occurrence is also revealed in a previously noted source.

The referential generality of an image sign can be increased by a reduction in its iconicity or realism. . . . The referential generality of an image-sign can be increased by variation of the contexts in which the image is embedded.16

Thus, the yet unstandardised grammatical rules of audio-visual communication can also instigate the more abstract, individualised understanding of a stimulus. Greater interpretation can result from greater audio-visual technical possibilities.

The objectives and hypotheses stated in the following pages are based on these findings and observations. The thesis' comprehension test is designed to examine the qualities of audio-visual communication and comprehension which have been discussed herein.
FOOTNOTES--CHAPTER III


CHAPTER IV

AUDIO-VISUAL AND VERBAL COMPREHENSION TEST

Objectives

The objectives of the combined comprehension test and questionnaire are the following:

1) To examine and compare audio-visual and verbal perceptual abilities.

2) To examine and compare explanatory and comprehensive abilities for verbal and visual stimuli.

3) To examine and compare the visual and verbal styles of comprehension and interpretation involved in message reception.

4) To develop a demographic profile of an audio-visual (A/V) literate.

Hypotheses

The following hypotheses are based upon previous findings included in the Audio-Visual Perception chapter.

1) There will be a greater number of responses, (i.e. more description and more detail), to the audio-visual stimulus than to the verbal stimulus.

2) The responses to the audio-visual stimulus will be more varied than the responses to the verbal stimulus,
(i.e. there will be greater deviation from the original description and between the responses).

3) The responses to the audio-visual stimulus will include more emotional and sensual references than the responses to the verbal stimulus.

4) Those who spend more time with audio-visual media will comprehend the visual segments more easily, (i.e. a greater number of responses and more description would indicate ease of comprehension).

TESTING COMPONENTS, PROCEDURES

Choice of Stimuli

The initial intention was to write a descriptive paragraph and to videotape the re-enactment of the written passage. The decision-making involved in choosing what type of action would be performed by whom, in what setting proved to be difficult. The non-verbals portrayed on television can be powerful. Everything that is seen on camera influences the viewer's perception of what is going on. The physical environment alone reveals information about the kinds of performers and the kinds of activities going on.

Several restrictions are imposed on the studio production. Technical factors which ultimately affect the content of a presentation are: availability of props, talent, studio crew members and, predominantly,
personal writing and producing skills. Thus, the act of videotaping a written piece incorporates all kinds of additional interpretation and information.

In a previous attempt to understand characteristics of visual perception, visual segments of varying degrees of 'concreteness' were produced and shown to people with different media backgrounds. Comprehension and perception of these segments were examined. A relevant observation of this study shows that, although producers cannot control all the variables in the production/viewing process, they should be conscious of the potential impact of each production decision that is made. For example, in one of the videotaped segments, the male moved his lips. This was overlooked by the producers, but was interpreted by several viewers as his attempt to communicate to the female. Thus, viewers interpreted the female's 'lack of response' as indifference and 'bitchiness', while it was actually a production error.  

Non-verbals can be potent. Viewers readily read meaning into visual detail.

The decision for choosing stimuli was to find material which had been professionally written and produced, which had already gone through the decision-making trials. Two short stories which had film counterparts were located. The stories are, "An Occurrence at Owl Creek Bridge" by Ambrose Bierce, and "Flying a Red Kite" by Hugh Hood.
The next step was to find passages which were depicted in a similar way on film. Length was not the predominant concern for choosing similar segments, but completeness of similar ideas was. (See Appendices A & B for the two chosen written passages.)

A great deal of interpretation exists in the translation to video. Because of this, it was difficult to locate an audio-visual segment which corresponded in content with a written passage. Similar passages contained different details, or the timing and importance given to incidents was altered. Therefore, minor edits were made in a written passage and a videotaped segment so the audio-visual and written content would be generally the same. Thought similarity in the content is crucial to the ability to make comparisons of the comprehension of the same content when it is communicated by two different media.

Another major concern was being able to formulate almost identical fill-in-the-blank (Cloze Procedure) sentences for four stimuli.

The fill-in-the-blank statements referring to the "Red Kite" written passage, Red Kite film clip, "Owl Creek Bridge" written passage and the Owl Creek Bridge film clip, all requested similar information about the stimulus' content from the subjects. They all also followed the same progression of thought, from the
beginning to the end of the passages.

The selected subjects would alternately read the passage from one story and view the videotaped segment of the other. Differences in the comprehension of content presented via two different media could be noted. By having two sets of stimuli, cross-references may be made. Any comprehensive advantage/disadvantage or more influential characteristics of the source would likely be balanced off. Findings would then be more accurate and reliable.

**Testing Procedures**

Each subject was given a package of paper which contained: a written passage, a questionnaire, two fill-in-the-blank sheets (one related to each stimulus), and two blank sheets. (See Appendices C, D and E for the questionnaire and response sheets.) Both structured and free responses would be given for each of the two stimuli. The class went through the package as a group, step by step, so the same time allotment was given for each respondent. The students were told that if they had spare moments throughout the response period, to continue filling in the questionnaire.

The six classes participating in the study were divided into two groups for testing--those that read "Flying a Red Kite" and viewed Owl Creek Bridge, and
those that read "An Occurrence at Owl Creek Bridge"
and viewed **The Red Kite**.

The step-by-step procedures and their time allotments in minutes and seconds are the following:

1:30 ("Red Kite")
2:15 ("Owl Creek")

1. Read the written passage on the loose sheet.

1:00

2. Pass the sheets to the end of the row. Turn to the first page after the questionnaire. (Appendix D or E, depending on which source is read.)

5:00

3. Follow the instructions to complete the given statements.

3:00

4. Label a blank sheet 'A-1' and "Describe the man's physical surroundings." (This statement was spoken aloud twice, then written on the blackboard. This was done for each of these 4 free responses.)

3:00

5. Label a blank sheet 'A-2' and "Describe what the man was experiencing once the kite was flying." (For those who read "Owl Creek Bridge", the statement requested them to "Describe what the man was experiencing once he reached shore.")

4:00 (Owl Creek)

6. View this videotaped segment. (If "Owl Creek" was read, Red Kite is viewed at this point, and vice versa.)

1:30 (Red Kite)

7. Turn to the last page and again follow the instructions for the sentence completion.

3:00

8. Label a blank sheet 'B-1' and "Describe the man's physical surroundings."
3:00

9. Label a blank sheet 'B-2' and "Describe what the man was experiencing once he reached shore," or, for the viewing of Red Kite, "Describe what the man was experiencing once the kite was flying."

2:00-5:00

10. Complete the questionnaire.

SAMPLING PROCEDURES AND SAMPLE DESCRIPTION

University students were chosen to be test subjects. The availability of the students and their convenience for testing were important factors for subject choice. However, it was also considered that University students have been exposed to both conventional and unconventional teaching methods and communication modes. They are more likely to have a greater variety of comprehension skills due to their educational initiation to 'conventional' subjects and content, which is usually followed by exposure to audio-visual aids and 'unconventional' teaching methods and subject matter. These students would tend to have potentially greater educational experiences than would younger or older subjects (in which cases educational exposure is more likely to be an either/or situation). This reason, in addition to the availability of university students, determined the choice of universe.

The attempt was made to select samples which
would yield students with varying levels and kinds of audio-visual exposure—a factor which would influence their levels of audio-visual sophistication. The hypotheses revolve around the influence of this audio-visual background on comprehensive abilities and literacy skills.

The sampling, then, was purposive and judgmental. A random sampling would not guarantee the variation of the media exposure factor which dominates the thesis' theme of exploration. Classes of presumed levels of audio-visual sophistication were chosen. Because the testing takes 35 minutes to conduct, instructors volunteered their students for testing during class time.

The classes chosen were presumed to have low, moderate and high amounts of practical media exposure (i.e. have practice in using audio-visual equipment). In this case, the University of Windsor's Communication Studies students would have television/film production, media awareness and criticism in their background. They are more likely to have 'new learner' insights, experiences and communication skills.

The two classes which were felt to have low levels of practical media exposure were a first year Business (140) and a second year Sociology (200) class. These subjects were tested at the beginning of their first and
second years. It was assumed that these students would typify average media patrons—audio-visual 'buffs' who passively absorb audio-visual information.

A split introductory Communication Studies class (101) composed the two test groups belonging to the intermediate level of media exposure. These students differ from the general viewing public because the introductory course entails: film editing, television production, awareness of involved decision-making processes and the characteristics and implications of media interaction. Analytical audio-visual skills have begun to develop. Their greater consciousness of audio-visual components allows them to define and understand audio-visuals. Both this group and the following were tested upon course completion.

The students composing the group having higher amounts of media awareness and skills came from second year film and television production classes, (Communication Studies 210, 215). This group of students has surpassed the introductory level of media understanding by participating in small group and independent audio-visual productions. As 'producers' of audio-visual communication, they have a wide arena of consciousness. With this, they can define, comprehend and apply audio-visual components. They have control over the elements
by means of their skills training and familiarization with technological capabilities.

For the computerized analysis of the subjects' responses to the stimuli, the subjects will be divided primarily by amounts and kinds of media exposure, rather than by class. The assumptions made above regarding their exposure and skills will be verified or annulled.

However the subjects are divided, it is still felt that basically three levels of audio-visual 'literacy' exist. These levels are the audio-visual 'buff' (the media patron who is aware of audio-visuals), the audio-visual critic (who defines and understands), and the audio-visual producer (who can understand and create A/V components).

Only 4 of the 142 respondents' comprehension tests and questionnaires were not included in the analysis because of incompletion or improper understanding of instructions. A total of 138 respondents formed the study's group of subjects.

The number of subjects per class and per presumed level of audio-visual sophistication (low, medium or high), were the following:

Read "Red Kite"
View Owl Creek

<table>
<thead>
<tr>
<th>Level</th>
<th>Course</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Business 140</td>
<td>28</td>
</tr>
<tr>
<td>Medium</td>
<td>Communication Studies 101</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Course</td>
<td>Level</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>High</td>
<td>Communication Studies 215</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Read &quot;Owl Creek&quot;</td>
<td></td>
</tr>
<tr>
<td>View</td>
<td>Red Kite</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Sociology 200</td>
<td>21</td>
</tr>
<tr>
<td>Medium</td>
<td>Communication Studies 101</td>
<td>26</td>
</tr>
<tr>
<td>High</td>
<td>Communication Studies 210</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>respondents</td>
<td>138</td>
</tr>
</tbody>
</table>

FOOTNOTE--CHAPTER IV

CHAPTER V

CONTENT ANALYSES:

SUBJECT INTERPRETATION OF THE STIMULI

Procedures

The two fill-in-the-blank sections asking subjects to recall written and audio-visual content are analysed here. The content clues given in the sentences allow direct comparisons to be made of the interpretive responses given for each sentence. It was found that, frequently, the information given to fill in the blanks was repeated in the unstructured responses. (e.g. Describe the man's physical surroundings.) The blank-by-blank analysis thus seemed to represent adequately both the respondents' ability to respond, and the interpretation of each stimulus' message.

All responses to the fill-in-the-blank sentences were recorded in four sections of nine parts. There are 10 blanks, but blanks number 5 and 6 were combined because of their common responses. The four sections were: "Red Kite"-read; "Owl Creek"-read, Red Kite-viewed, and Owl Creek-viewed. The similar and identical responses to
each blank were grouped.

Once every response to every blank was recorded, further grouping of responses was done in order to note the number of themes which were mentioned. The categorization here was for thematic responses to the corresponding audio-visual and verbal stimuli. (e.g. themes for blank #1, "Red Kite" read and Red Kite viewed.) Similar themes were categorized for each pair of stimuli, so the comprehensive differences in viewing and reading could be noted.

The themes, or trains of thought, were categorical references to, for example, physical appearance, feelings and sensations, kite flying, escape, swimming, and so on. The basic understanding and the dominant content features of the message could be recorded. Any comprehensive differences between the reading and viewing of a message could be noted.

The content of the blank responses was analysed in three categories for each section. The categories were: 1) 'no response', 2) number of themes, and 3) number of 'different responses'. Therefore, coding was of: the number of common trains of thought per blank, per story; the number of different ways these thoughts were expressed; as well as of a respondent's inability to respond ('no response').

From this point, the average number of 'no
responses', themes and 'different responses' were to be determined for both of the film segments and for the two written passages. In this way, findings could be generalized to the comprehension styles of audio-visual versus written communication.

The two groups which viewed or read a message were of unequal size (80, 58), therefore, standard frequencies out of 100 were calculated. This way, no weighting would be given to a particular response, and the findings would be more accurate.

The three categories' averages per blank, then their averages per ten blanks, were calculated. The final products of this analysis are total averages for the frequency of 'no response', the number of themes, as well as for the number of different expressions. Comparisons are to be made between the response category frequencies for the written and the audio-visual passages.

Findings

Table 1 indicates that: the average number of 'no responses' is significantly lower for the audio-visual stimulus; the readers referred to rather more themes than the viewers, and the viewers made references to the material in more different ways than did the readers.
# TABLE 1

**INTERPRETATION OF THE STIMULI:**

**AVERAGE CATEGORICAL RESPONSES**

<table>
<thead>
<tr>
<th>Blank Number</th>
<th>Categories</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Response</td>
<td>Read</td>
<td>Viewed</td>
<td>Read</td>
<td>Viewed</td>
<td>Read</td>
<td>Viewed</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>20.6</td>
<td>12.9</td>
<td>6.3</td>
<td>8.3</td>
<td>25.7</td>
<td>51.4</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>23.4</td>
<td>3.9</td>
<td>7.7</td>
<td>6.8</td>
<td>42.5</td>
<td>69.0</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>22.4</td>
<td>4.8</td>
<td>5.1</td>
<td>3.6</td>
<td>40.6</td>
<td>59.0</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>6.3</td>
<td>5.6</td>
<td>6.8</td>
<td>10.3</td>
<td>73.0</td>
<td>92.9</td>
</tr>
<tr>
<td>5-6</td>
<td></td>
<td>28.1</td>
<td>5.2</td>
<td>4.5</td>
<td>4.5</td>
<td>55.2</td>
<td>80.6</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>9.0</td>
<td>0.6</td>
<td>3.6</td>
<td>4.7</td>
<td>46.1</td>
<td>49.0</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>15.9</td>
<td>2.3</td>
<td>5.9</td>
<td>7.2</td>
<td>68.6</td>
<td>90.6</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>13.1</td>
<td>1.5</td>
<td>3.8</td>
<td>2.3</td>
<td>62.2</td>
<td>72.7</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>21.7</td>
<td>1.7</td>
<td>4.8</td>
<td>4.7</td>
<td>67.4</td>
<td>74.0</td>
</tr>
<tr>
<td>1-10</td>
<td></td>
<td>17.8</td>
<td>8.6</td>
<td>7.1</td>
<td>5.8</td>
<td>53.5</td>
<td>71.0</td>
</tr>
</tbody>
</table>
Observations

It appears to be significantly easier to respond to audio-visual than to written stimuli. The lower average of 'no responses' suggests this. There is also less deviation in general comprehension of the videotape. The combined findings suggest that there is more information transmitted audio-visually than there is verbally, and that this information is very specific, presenting more concrete representations of an event than do words. These factors rationalize the viewers' ease of comprehension.

In spite of the 'concreteness' of audio-visual images, more individualised interpretation exists. Viewers' responses are more varied possibly because of the fewer common trains of thought. It is likely that the nature of written media imposes restrictions on perceptions, that observational guidelines are more structured. Certain details are given a standard amount of emphasis which, in turn, become standardised in readers' responses. Writing shapes understanding by putting words in our minds, by verbally categorizing what is read. Viewing, on the other hand, allows individuals to fix their eyes and thoughts freely on whichever details are most appealing to their particular tastes or concerns.
'NO RESPONSE' AND RESPONSE VARIATION:
CLASS GROUPINGS

Procedures

All findings regarding class groupings are based upon the following subject distribution (which has been explained in an earlier chapter). The Business and Sociology students constitute the first group, with presumably the lowest levels of practical media exposure. The two introductory Communication Studies' classes compose the second group having intermediate levels of practical exposure. The group of higher levels of exposure is made up of students from the second and third year Communication Studies film and production courses.

To determine class trends in response variation and 'no response', the groupings of similar and identical responses per blank were referred to. (These word and phrase groupings were used in the previous analysis.) While grouping the references, the individual's identification number was used as a tally. These numbers were colour coded by class, and the sheets were examined for the number of 'no responses' and the total number of different responses per class, per stimulus.

Having calculated totals using a standard base of 100, average rates for each class in both categories were determined.
'No Response'--Findings

Table 2 shows a consistent decline in the total numbers of 'no responses'. The highest 'no response' rate to both written and audio-visual stimuli is by the first year Communication Studies' students. The lowest rates of 'no response' to both sets of stimuli exist in the production students' category. The Business and Sociology students consistently have the intermediate levels of 'no response' per stimulus.

In all cases, the number of 'no responses' to the written stimulus exceeded those of the responses to the audio-visual stimulus. Table 3, indicating the average rates for both reading passages, and both videotaped segments, simplifies these findings.

Table 3 also shows a drastic difference between the total 'no responses' to the different modes by the first year Communication Studies' students. With the other two sections, there are lower differences between the 'no responses' given to the audio-visual and written stimuli.

Observations

Prior to this analysis by class groupings, it was assumed that the performance rates would inversely coincide with the presumed levels of practical media
exposure. It was felt that the higher the level of exposure, the lower the rate of 'no response' to the audio-visual stimulus. The second lowest 'no response' rate would be by the introductory Communication students, and the highest rate by the Sociology/Business students. Findings supporting this hierarchy would support the supposition that greater 'training' in audio-visual awareness and creation leads to greater ease in 'reading' and interpreting an audio-visual passage.

The film and television students responded with greater ease to both stimulus modes. (The 'no response' rates were low--10.05 for reading (Rdg) and .88 for viewing (Vwg).) This was expected. However, a strong second position (12.53 Rdg, 2.58 Vwg) was taken by the non-media students. The Sociology and Business students apparently had much less difficulty responding to both sets of stimuli than did the first year Communication students. These introductory students apparently found it difficult to respond to what they viewed, and found it much more difficult to respond to what they read (32.26 Rdg, 8.28 Vwg).

When examining performance on a reading versus viewing basis, it is found that in all cases, students were more able to respond to the audio-visual segment.
In all cases there are fewer 'no responses' given to the audio-visual than to the written material. This finding coincides with the original content analysis (Subject Interpretation of the Stimuli), subdividing responses from all subjects into reading and viewing modes.

It is likely that the audio-visual mode of communication is an easier mode to understand, perhaps because of its advantageous ability to present a vast amount of information in great detail. Literature regarding these observations was further discussed in Chapter III—Audio-Visual Perception.

Response Variation--Findings

As Table 4 indicates, there are no thoroughly consistent class trends in responses. For the two stimuli in part I, the introductory Communication Studies students have the lowest, and second lowest rates of response variation. The Business students have the highest and lowest levels of variation, whereas the television production students rate second and first in high variation rates.

The totals in part I coincide with those in part II. The consistent class trend here is for the film students to have the greatest amount of response variation, the Sociology students to have less, and...
the introductory class to have the least amount of response variation.

Table 5 shows the average number of different responses for both of the written stimuli and both of the audio-visual stimuli. In all cases there is greater response variation for the audio-visual segment. There is also a progressive increase in the amount of variation from the introductory media students (Co St 101), to the non-media-related group (Bus/Soc), to production classes (Co St 215/210).

The highest difference between the response variation totals per medium is in the Communication Studies 101 class. The discrepancy between totals declines down the line. This trend supports similar findings in the previous 'no response' analysis.

Observations

The highest amount of variation in responses to both the written and audio-visual stimuli is expressed by the second year film production students. (The television production students also have high rates.) It is likely that practice as an independent filmmaker promotes the acquisition of personal insight to the combination of film syntax. Their creative technological abilities aid their individualised film 'reading' abilities.
All students responded with greater variation to the videotaped segment. This finding supports the previous finding of fewer 'no responses' being given to the audio-visual stimulus than to the written passage. The nature of audio-visual expression allows more information to be selected by the individual. In addition to the presentation of more information is the possibility that audio-visual messages may be more sense-oriented than print. Subjective impressions are more likely to be made on a viewer than a reader. The sensual characteristics of the audio-visual medium influence greater personal interpretation.

These observations of class groupings support the previous, more general findings showing greater variation in responses to the audio-visual segments than to the written passages. Further observations regarding the interpretation of audio-visual messages have been discussed in the "Audio-Visual Perception" chapter.
### TABLE 2

**AVERAGE NUMBER OF 'NO RESPONSES' PER CLASS**

<table>
<thead>
<tr>
<th>Stimulus</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Red Kite&quot;</td>
<td></td>
</tr>
<tr>
<td>Read</td>
<td>49.4</td>
</tr>
<tr>
<td>Owl Creek</td>
<td>7.8</td>
</tr>
<tr>
<td>Viewed</td>
<td></td>
</tr>
<tr>
<td>&quot;Owl Creek&quot;</td>
<td>15.2</td>
</tr>
<tr>
<td>Read</td>
<td></td>
</tr>
<tr>
<td>Red Kite</td>
<td>8.8</td>
</tr>
<tr>
<td>Viewed</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 3

**AVERAGE NUMBER OF 'NO RESPONSES' BY CLASS AND COMMUNICATION MODE**

<table>
<thead>
<tr>
<th>Stimuli</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>32.3</td>
</tr>
<tr>
<td>Passages</td>
<td></td>
</tr>
<tr>
<td>Audio-Visual</td>
<td>8.3</td>
</tr>
<tr>
<td>Segments</td>
<td></td>
</tr>
<tr>
<td>Difference =</td>
<td>24.0</td>
</tr>
</tbody>
</table>
TABLE 4
AVERAGE NUMBER OF 'DIFFERENT RESPONSES' PER CLASS

<table>
<thead>
<tr>
<th>Stimulus</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Red Kite&quot;</td>
<td>46.4</td>
</tr>
<tr>
<td>Read</td>
<td></td>
</tr>
<tr>
<td>&quot;Owl Creek&quot;</td>
<td>76.1</td>
</tr>
<tr>
<td>Viewed</td>
<td></td>
</tr>
<tr>
<td>&quot;Owl Creek&quot;</td>
<td>60.9</td>
</tr>
<tr>
<td>Read</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td></td>
</tr>
<tr>
<td>Red Kite</td>
<td>73.5</td>
</tr>
<tr>
<td>Viewed</td>
<td></td>
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</table>

TABLE 5
AVERAGE NUMBER OF 'DIFFERENT RESPONSES'
BY CLASS AND COMMUNICATION MODE

<table>
<thead>
<tr>
<th>Stimuli</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Passages</td>
<td>53.7</td>
</tr>
<tr>
<td>Audio-Visual Segments</td>
<td>74.8</td>
</tr>
<tr>
<td>Difference</td>
<td>21.1</td>
</tr>
</tbody>
</table>
RESPONSE PATTERNS

Procedures

This analysis was conducted to determine if there is any type of progression during the response period in the amount of similarity or variety of thought, and in the ease of understanding. This could be found by dividing the blank responses into three parts—the beginning, middle and end of the responding period.

The previous combination of blanks number 5 and 6 allowed an equal division to be made. There are 3 blanks for each phase of responding—beginning = blanks #1, 2, 3; middle = #4, 5-6, 7; end = #8, 9, 10.

No previously established norms exist for determining low, medium and high levels of responses. For the three types of responses to be analysed—'no response', themes and 'different responses'—the lowest and highest categorical totals of the combined audio-visual and verbal responses were found. The spread between each low and high score was divided into three parts.

The resulting levels of responses in the three categories are the following:
The analysis sheets leading to overall averages for audio-visual and written responses in the three noted categories were referred to. This analysis gave blank-by-blank averages of these categories for the two stimulus modes. Each of these averages was plotted on a chart categorizing low, medium and high scores at the beginning, middle and end of the responding period.

The allocation of points allowed trends to be plotted on a graph. The low scores were given 1 point; the middle, 2 points; and the high scores received 3 points. The point totals for the beginning, middle and end of the response period were plotted. The results are seen on Table 6.

**Findings**

The 9-5-7 plotting of 'no response' to the written stimulus shows a rather sharp decline from the beginning to the middle. The increase in end responses brings the average back to a moderate level. The plotting of 'no responses' to the audio-visual mode show constant, low levels (4-3-3).
The pattern for the number of themes referring to the written passage remains quite constant throughout responding (6-5-5). The viewers' pattern remains constant at the beginning and middle, then slightly declines at the end (6-6-4).

There is a steady incline in the readers' number of 'different responses'. The 3-4-6 plotting shows increasingly more response variation. The 5-7-5 plotting of the viewing responses shows an increase in the number of 'different responses' in the middle, and a decline at the end, returning the amount of variation to its original point.

Observations

Fewer 'no responses' to the written passage exist when the blank statements give specific clues. (e.g. 'Suddenly he felt _______ and 'His surroundings _______ and _______'). When greater leeway for responding is given to the readers, they tend to perform quite poorly. It seems that their reliance on the source's provision of exact content is high. Specific guidance is important.

The quite constant low levels of 'no response' to the audio-visual segment suggests that viewers consistently receive more information via this mode of presentation. More information given by means of
images, motion, sound effects, etc., allows viewers to absorb, interpret, retain and verbalize more content.

The observations regarding the number of themes are relevant to the previous findings about the readers having a wider scope of thematic references than the viewers. Because audio-visuals portray very concrete representations of content, viewers are more likely to have a common understanding of the material. In spite of this, however, the fewer general conceptions of the content are more individually expressed. There is greater variation of fewer common trains of thought.

All respondents sharpened their perceptions in the final phase. It would seem that greater cohesion of thought would be due to the evolving familiarity with the stimulus' content. This observation would contradict the findings regarding trends in the number of different responses.

The steady incline of the reader's shows a greater amount of variation in response at the end. A previous observation explains the readers' reliance on text content to guide them through the comprehensive questions.

The viewing responses for variation and number of themes decrease in the final phase of responding. There tends to be greater cohesion of thought. The more concrete audio-visual representation of information
influences ability to respond more specifically.

Both readers and viewers had their greatest amount of response variation in the middle. This is likely due to the sentences asking for descriptions of surroundings and feelings. Selective perception via individual differences plays an important part here. Different details made strong impressions on different receivers.

The 'high-low-high' trend in the rates of 'no response' contradicts the laws of primacy and recency. These laws would predict that content from the beginning and end of a passage is remembered, and information in the middle is forgotten. This is not the case in the pattern of 'no responses' which shows the greatest ability to remember content from the middle of the passages.

The higher rate of 'no response' in the preliminary response stages may, however, be due to attempts to orient oneself to the testing procedures.

The plotting of the viewers' rates of 'different responses' (5-7-5) is consistent with the laws of primacy and recency. The middle is forgotten, so there is more variation in 'remembering' it.

Although there is not a very strict order in requesting consecutive information from the passages and segments, it is interesting to note these observations.
TABLE 6
RESPONSE PATTERNS

Number of 'No Responses'

Number of Themes

Number of 'Different Responses'

---

\[\text{Reading Responses} \quad \text{---} \quad \text{Viewing Responses}\]
READING AND VIEWING: PERCEPTUAL MODES

Procedures

The following content analysis is an attempt to determine the thinking style associated with audio-visual and written stimuli. The distinction between the two is assumed to be one of progressive linear logic versus a holistic impressionistic gestalt. It is felt that the thinking style of the former mode is similar to that of a detached observer of events who records details and progressions. The impressionistic style would be activated by one who takes an empathetic view of a situation, to the extent of becoming a 'participant' in the experiences.

Categories of responses which seemed to typify these thinking styles were labelled on a chart for coding. The responses felt to belong to the 'detached-observer' style of thinking are mentions of: 1) Physical Activity, 2) Physical Characteristics, 3) Objects/Humans, and 4) Location. References to these categories would indicate a direct recording of actors, actions and settings.

The response categories felt to typify the 'empathetic participant' are: 1) Impressionistic Description, 2) Physical Sensation, 3) Emotion, 4) Animation of the Inanimate and 5) Aesthetics. References to these cate-
gories would indicate a sensory participation in an event which is observed and felt.

It was casually hypothesized that responses to the audio-visual stimulus would fall more in the 'empathetic-participant' than in the 'detached-observer' categories, and vice versa for the written stimulus. This would be due to the characteristic differences between the media, as previously discussed in the Introduction.

The coding was done with reference to the sheets compiling the common responses per blank for each of the four stimuli. Any response which did not fall into any of the nine cited categories was excluded from this particular analysis. (An example of an ignored response is 'no response'.)

A straight count was done for the ten blanks for each of the four stimuli. The totals for each thinking style category were compared blank by blank, and by the stimulus mode--audio-visual or written.

Table 7 indicates which blanks received more of which categorical responses, and to which stimulus mode the responses were directed. The number of blanks categorized by each thinking style were totalled. Comparisons can then be made between the categorical strengths of each medium.
Findings

An equal number of responses to the audio-visual and written stimuli are in the categories of Physical Characteristics ('detached-observer' mode) and Physical Sensations ('empathetic-participant' mode).

The higher number of responses to the blanks for the written passages fall in the categories of Physical Activity (5:4--'detached-observer') and Aesthetics (2:0--'participant-observer').

The higher number of responses to the blanks for the audio-visual segments fall in three of the 'empathetic-participant' categories and two of the 'detached-observer' modes. The categories and their comparative totals are the following: Impressionistic Description (7:1); Emotion (6:1); Animation of the Inanimate (4:2); Objects/Humans (4:1); and Location(6:1).

Total responses in the 'detached-observer' categories are higher for the A/V stimulus than for the written (16:9). Similarly, the total number of blanks receiving more 'empathetic-participant' references is higher in response to the A/V stimulus than to the written (20:9).

Observations

As the findings indicate, both 'empathetic-participant' and 'detached-observer' references were
higher in response to the audio-visual stimulus. The hypothesis stating that responses to the A/V segment would fall more in the 'empathetic-participant' than in the 'detached-observer' categories, and vice versa for the written stimulus, is invalid.

Aesthetics were mentioned only in the blank responses to the written stimuli. References considered to be aesthetic in nature were phrases such as 'circular blurs of colour', and variations of this phrase. These mentions are very similar to those in the passage to be read. Prominent words from descriptive phrases within the written paragraph are repeated in the responses. Aesthetic mention here is a matter of retaining impressionistic, pleasant phrasing provided for the reader. This retention and adaptation of descriptive phrasing is a consequence of effective writing which leads to a common understanding of the event and the writer's intent. It is doubtful that phrases like 'circular blurs of colour' would be created without any previous verbal guidance.

It would be significant if aesthetic mentions were made which were not strictly based upon stimulus content. This would suggest a great deal of personal involvement in the message.

The emotional references made to the videotape were of activities, physical and emotional feelings
and surroundings. The computerized frequency distribution count shows the mean (average) for the number of sensual references to be higher for the audio-visual stimulus than the written (6.5:5.01).

In addition to the sensual references being higher, they are also more consistent throughout audio-visual perception. The only blanks which received higher emotion-related responses to the written source were the combined #5-6. (His surroundings__________ and ____________.)

High amounts of emotional references to one's surroundings indicate involvement with nature. This environmental empathy is similar to the microcosm/macrocosm concept whereby the environment reflects the inner state of man. The written passage very effectively emphasizes the subject's glorification of nature. The readers' retention of these sensations proves this. As previously noted, retention of written content is primarily of impressions. Emotional impact is easily retained.

In spite of having to transcribe visual images into words for the responses, the viewers tended to advance one step beyond the empathetic perceptions of the readers. The responses to the same blanks (#5&6) yielded a high amount of references to the "Animation
of the Inanimate' category. The viewers' references to environmental animation similarly typify the man's glorification of nature, without having had verbal statements guiding the perceptions of the man's feelings.
TABLE 7

PERCEPTUAL MODES:

DOMINANT CATEGORICAL RESPONSE PER BLANK

<table>
<thead>
<tr>
<th>'Detached Observer' Mode Categories</th>
<th>↑ Modal Responses to A/V in Blanks #:</th>
<th>↑ Modal Responses to Print in Blanks #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Activity</td>
<td>2,3,7,10</td>
<td>1,4,5-6,8,9</td>
</tr>
<tr>
<td>Physical Characteristics</td>
<td>1,8</td>
<td>5-6,9</td>
</tr>
<tr>
<td>Objects/Humans</td>
<td>2,4,5-6,9</td>
<td>1</td>
</tr>
<tr>
<td>Location</td>
<td>2,4,5-6,7,8,9</td>
<td>10</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>16</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>'Empathetic Participant' Mode Categories</th>
<th>↑ Modal Responses to A/V in Blanks #:</th>
<th>↑ Modal Responses to Print in Blanks #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impressionistic Description</td>
<td>1,2,4,5-6,8,9,10</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sensation</td>
<td>2,5-6,8</td>
<td>1,4,9</td>
</tr>
<tr>
<td>Emotion</td>
<td>1,3,4,8,9,10</td>
<td>5-6</td>
</tr>
<tr>
<td>Animation of the Inanimate</td>
<td>1,2,5-6,9</td>
<td>4,10</td>
</tr>
<tr>
<td>Aesthetics</td>
<td></td>
<td>5-6,7</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>20</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>
EMPATHETIC RESPONSES: CLASS GROUPINGS

Procedures

The coding of class totals for 'no response', 'themes' and 'different responses' lay the groundwork for this analysis. The thematic responses which fell into the 'empathetic-participant' categories were coded by class. No mention of Aesthetics was made by viewers, so the coding columns were: Impressionistic Description, Physical Sensation, Emotion and Animation of the Inanimate.

Table 10 condenses the gathered information by indicating the ranking of class responses per coding column. A point system was drawn whereby ranks 1, 2 and 3 respectively equal 3, 2 and 1 points. Comparisons of each class' total would indicate average rankings for the read and viewed stimuli. These rankings would be supported by the numerical totals and averages of each class' empathetic references. (Table 8)

Findings

Table 8 shows the rank totals of empathetic references per class. The rankings indicate a subdivision between the exposure sets of stimuli, (i.e. "Red Kite"-Read, Owl Creek-Viewed and "Owl Creek"-Read, Red Kite-Viewed). Both classes composing one
section (A = Co St 101, B = Bus/Soc or C = Co St 215/210), rank the identical position for each stimulus set. The consistent rankings, from highest to lowest, are C, B and A. (See Table 9).

This consistent ranking in empathetic references is seen in Table 8's totals and averages as well. The second year production classes rank first, the Business and Sociology students second, and the introductory Communication students rank third. These rankings also coincide with those in the analyses of 'no response' and 'different responses'.

The allocation and addition of points in Table 10 allows general perceptual performance to be noted. In this way, the class ranking per each 'empathetic-participant' category indicates the same hierarchy, from the Co St 215/210 students to the Co St 101 students.

**Observations**

The students with the presumably higher levels of practical media exposure perceived and comprehended the audio-visual stimulus in a more empathetic way than did the other students. It is likely that their experience on the producer level of media contact enables them to 'read' a film more easily and get more involved in the verbal translation of a visual source.

This relationship between media exposure and
amount and kind of involvement would be further supported if the introductory Communication Studies students ranked second in total empathetic references and the Business/Sociology students ranked last. Without this hierarchy, the amount of influence of practical media exposure on empathetic comprehension of an audio-visual message is questionable.
**TABLE 8**

CLASS TOTALS OF 'EMPATHETIC' REFERENCES

<table>
<thead>
<tr>
<th>Class Ranking</th>
<th>Class Totals</th>
<th>Grand Totals</th>
<th>Class Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>CoSt 101 = 336.3</td>
<td>909.4</td>
<td>454.7</td>
</tr>
<tr>
<td>3</td>
<td>CoSt 101 = 573.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Business = 421.4</td>
<td>1059.5</td>
<td>529.7</td>
</tr>
<tr>
<td>2</td>
<td>Sociology = 638.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>CoSt 215 = 520</td>
<td>1338.2</td>
<td>669.1</td>
</tr>
<tr>
<td>1</td>
<td>CoSt 210 = 818.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 9**

SECTION RANKING OF 'EMPATHETIC' REFERENCES PER STIMULUS SET

<table>
<thead>
<tr>
<th>Stimulus Set</th>
<th>Rank ↑↓</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Red Kite&quot; Read Owl Creek Viewed</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>&quot;Owl Creek&quot; Read Red Kite Viewed</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>

A = CoSt 101
B = Business/Sociology
C = CoSt 215/210


Table 10 indicates the class ranking for each 'empathetic-participant' category. The ranking shows the class having the highest (1), to the lowest total (3), in each particular column.

### Classes:
- A = CoSt 101
- B = Business/Sociology
- C = CoSt 215/210

### Points:
- Rank #1 = 3 points
- Rank #2 = 2 points
- Rank #3 = 1 point
COMPUTER ANALYSIS: FREQUENCIES AND CROSS-TABULATIONS

Procedures

The analysis of responses to the comprehension test considered many factors. These factors and their descriptions are listed below.

1) The total number of words used to respond to the print and the audio-visual stimulus was determined by a straight count. The number of words used to fill in the blanks, and to respond freely were counted. The total number of words used to respond to the different stimuli would be compared. Word totals would suggest a respondent's ease of understanding.

2) The total number of errors in responding was calculated. Grammatical and spelling errors were counted. Also, when marking the fill-in-the-blank section, a missing conjunction or a fragmented idea counted as an error. The lack of response ('no response') was calculated separately.

3) The style of response to the free description was also noted, i.e. the use of point or sentence form was indicated for each of the four free responses. Comparisons would be made
between the style of response to the print and the A/V communication mode.

4) The number of 'sensual references' made to the print and the audio-visual stimuli were calculated. The totals were split into references to print and references to audio-visuals. A reference was considered to be 'sensual' in nature when it: expressed a sensation or an emotion; used similes, metaphors, personification or onomatopoeia. Examples which suggest an internal feeling state, and were considered to be 'sensual references' are: 'a sense of safety', 'the kite pulsing on the line', and the 'precious sand resembling gems'.

5) The amount of description which was not 'sensual' in nature was also calculated. The number of adjectives and adverbs used to describe the written and audio-visual stimuli were totalled. Physical observations of the different stimuli thus were noted.

It was considered that the use of a choice verb or noun would nullify the need to use an adverb or adjective to succinctly describe something. This could make the measurement invalid. However, the calculation of descriptive words seems to be the only way of objec-
tively determining amount of description. It is also likely that a very appropriate descriptive verb would be considered to be onomatopoeic, and would already have been counted as a sensual reference.

These test results and the information provided in the questionnaire were punched onto computer cards. The SPSS (Statistical Package for Social Sciences) computer language was used for factor frequency counts and cross-tabulations. Chi-square ($x^2$) statistical analysis was referred to for levels of significance, whereby .05 indicated a significant relationship. Pearson's correlation coefficient indicated whether the factors had a positive or negative relationship.

**Frequency Findings**

The comparative results of the total number of words used to respond to the print and audio-visual materials are, respectively: mean--83.91, 95.49; mode--70, 116, and range--3 to 208, 12 to 213.

The total number of errors groups responses to the two sources. The mean error total is 5.29, the modal error rate is 3, and the range of errors is from 0 to 20.

Table 11 shows the number of point-form and sentence responses to the unstructured questions.

The comparative results of the total number of 'sensual' references made to the print and audio-visual
stimuli are respectively: mean--5.01, 6.51; mode 6, 5, and range--1 to 13, 1 to 15.

The statistics indicating the number of descriptive words used are the following for the written and audio-visual segments: mean--8.14, 8.76; mode--8, 7; and range--1 to 19, 1 to 23.

The computerized frequency count also listed response totals for the questionnaire items. The factors and the information to be used in the cross-tabulations are listed below:

1) The average number of reading hours per week is 16.58. The rank ordering of the average percentages of reading time devoted to certain genres is:

(1) non-fiction books -- 31.29%
(2) newspapers -- 28.93%
(3) fiction books -- 17.27%
(4) entertainment magazines -- 17.17%

2) The mean response to the average number of hours spent listening to the radio in one week is 15.84. The rank ordering of average time percentages spent on radio programme genres is:

(1) music -- 67.19%
(2) news -- 24.37%
(3) talk -- 13.26%

3) The mean number of hours per week spent watching television is 13.69. The rank ordering of average time
percentages given to viewing particular genres is:

(1) TV movies --23.44%
(2) news/current affairs --21.38%
(3) sports --19.34%
(4) situation comedies --16.84%
(5) adventure/dramas --13.61%
(6) documentaries --13.4 %
(7) variety shows -- 9.96%
(8) game shows -- 7.21%

4) The mean response for frequency of movie going is 2.69, almost 3 times for a two-month period.

5) The frequencies for combining other activities with television viewing are the following:

<table>
<thead>
<tr>
<th>Activity</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socializing</td>
<td>84</td>
<td>54</td>
</tr>
<tr>
<td>Housework</td>
<td>54</td>
<td>84</td>
</tr>
<tr>
<td>Paperwork</td>
<td>48</td>
<td>90</td>
</tr>
<tr>
<td>Other activities</td>
<td>25</td>
<td>113</td>
</tr>
<tr>
<td>Radio/Stereolistening</td>
<td>23</td>
<td>115</td>
</tr>
</tbody>
</table>

'Other activities' as defined by the respondents are eating, reading the newspaper, sewing and crafts, and cosmetic activities.

5) Regarding the years of high school in one's background, 4 subjects did not respond, 6 indicated 1, 2 or 3 years, and 128 respondents went to high school for 4 or 5 years. The latter subjects are presumably high school graduates.
7) Ninety (90) respondents indicated receiving an A or B average in high school. Forty-four (44) had a C or D average.

8) Eighty-three (83) respondents indicated having an A or B average thus far in university. Fifty-one (51) had a C or D average.

Observations

In general, the total number of words used to respond to the written stimulus is lower than to the audio-visual. This supports the research which records brain-wave patterns of responses to different communication modes. The audio-visual source is simply an 'easier' form of communication to understand.

The total number of discrptive words used in recalling the written content is slightly less than for the content which was viewed. This difference is likely due to the same reason above, as well as to the greater emotional understanding of the audio-visual stimuli, which is supported by the greater number of sensual references being made to the viewed material.

It was anticipated that a trend would exist in the style of response (i.e. point or sentence form) to questions about the physical and emotional content of printed and audio-visual information. Table 11 indicates that consistently more responses are in sentence
form for both modes and both questions. Although the use of sentence format increases when describing the man's feelings, the trend does not appear to be significant.

The use of a different format could have been attributed to acquiring more information from one source which could be more easily digested and recalled. When marking the tests, there seemed to be more people responding in sentence form to the 'feeling' question. It was suspected that a complete, cohesive understanding of feelings existed, whereas, a more fragmented perception of surroundings resulted. These suspicions have not been supported.

Although the findings are not directly relevant to the current concerns, it is interesting to note the casual existence of television in daily lives. The combination of TV viewing with other activities is widespread. The high percentage of people who include television in the socializing process suggest the expanding functions of the medium.
## TABLE 11

**TYPE OF RESPONSE PER QUESTION AND STIMULUS**

<table>
<thead>
<tr>
<th>Stimulus</th>
<th>Describe Physical Surroundings</th>
<th>Describe Feelings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Point</td>
<td>Sentence</td>
</tr>
<tr>
<td>Print</td>
<td>53</td>
<td>80</td>
</tr>
<tr>
<td>Audio-Visual</td>
<td>53</td>
<td>84</td>
</tr>
</tbody>
</table>
Cross-Tabulations

Findings

The cross-tabulations show the media exposure habits and background of the three sections--Business and Sociology (Bus/Soc), Communication Studies 101 (Co St 101) and Communication Studies 215 and 210 (Co St 215/210).

The grouping of classes was intended to combine students with similar amounts of media exposure. Question #9 of the questionnaire (See Appendix C) asks subjects to indicate which of the listed activities have been performed, and in what capacity. The total number of checks given to Education-Related, Job-Related and Personal Activity categories were combined to create the practical media exposure variable. (The overall totals for each of these respective categories are: 98, 13, and 95. Most of the subjects were full-time students, therefore the job-related media experience total is low.)

Low (0, 1), medium 2, 3), and high (4, 5) levels of practical media exposure were cross-tabulated with sections. Presumably, the Bus/Soc students had low levels of exposure, Co St 101 had moderate, and Co St 215/210 had high levels of practical media exposure. The cross-tabulation confirms this assumption. A positive, highly significant relationship (0.00) exists between section and practical media exposure. The Bus/Soc
students do have the lowest and the Co St 215/210
students do have the highest levels of practical media
exposure.

When looking for significant characteristics of each
section, the row percentages in the cross-tabulations were
referred to. By looking down, for example, the 'high'
level reading column, comparisons could be made between
the percentages of Bus/Soc, Co St 101 and Co St 215/210
students who read a lot. Reading the tables in this way
gives information about the tendencies of each class.

Findings which emphasize the tendencies of one
class to be different than, or more significant than those
of the others, will be noted.

A greater percentage of the Business/Sociology
respondents (26.5%) made a high total number of 'sensual
references' (1-15) to the audio-visual stimulus than did
the Co St 215/210 and 101 students (25.7%, 24.1%).
More Bus/Soc students (41.7%) also used high totals
(11-23) of descriptive words in response to the audio-
visual source than did Co St 215/210 and Co St 101
students (31.4%, 24.1%).

The Bus/Soc students consistently attend movies
less frequently than the other students. The percentages
of high movie attendance (4-15 times/2 months) are:
Co St 101--32.6%, Co St 215/210--28.1%, and Bus/Soc--19.0%.
Similarly, the Bus/Soc students watch less television.
Student percentages for high amounts of TV viewing (22-60 hours per week) are: Co St 101—23.1%, Co St 215/210—17.6%, and Bus/Soc—10.9%.

The type of television content which is viewed more frequently (high = 36 to 99% of viewing time) by the Bus/Soc students than by the other students is the following: high level documentary viewing occurs with 5.3% of Bus/Soc students, 3.7% of Co St 215/210, and 2.6% of Co St 101 students; high level TV movie viewing occurs with 20.5% of the Bus/Soc classes, 18.2% of Co St 215/210 and 13.7% of Co St 101 classes; Sports receive 21.2% of Bus/Soc students as high viewers; 15% of Co St 101 and 4.3% of Co St 215/210; Game shows receive a high percentage of frequent Bus/Soc viewers, 17.4%, but no Co St 101 and 215/210 students.

Twenty percent (20%) of the Bus/Soc students spend a high amount of time reading (30-80 hours a week). The percentages of Co St 101 and Co St 215/210 students which fall in the high reading category are, respectively, 17% and 8.5%.

Non-fiction books are read 51-99% of the time by 23.8% of Bus/Soc students, as opposed to 12% of the Co St 101 and 11.8% of the Co St 215/210 students.

Regarding the test results, the Co St 101 class had the fewest students (20.8%) in the column of high total number of errors (8-20). Co St 101 also had the lowest
percentage of students falling in the high categories of: the total number of words used to respond to the A/V stimulus, (total words A/V--high = 116-213; the total number of sensual references to both stimuli (total SR print--high = 9-13, total SR A/V--high = 9-15), and the number of descriptive words used to respond to both stimuli (total description print--high = 11-19, total description A/V--high = 11-23).

The comparative class percentages in the high column of each of these factors are the following:
total words--A/V--Co St 215/210--31.4%, Bus/Soc--30.6%.
Co St 101--27.8%; total SR--Print--Co St 215/210--14.7%,
Bus/Soc--10.9%, Co St 101--4%; total SR--A/V-- Bus/Soc--
26.5%, Co St 215/210--25.7%, Co St 101--24.1%; total
description--print--Co St 215/210--31.4%, Bus/Soc--27.1%
Co St 101--18% and total description--A/V--Bus/Soc--
41.7%, Co St 215/210--31.4% and Co St 101--24.1%.

A greater percentage of Co St 101 students watch high amounts (22-60 hours per week) of television (23.1% versus Co St 215/210's 17.6% and Bus/Soc's 10.9%). More Co St 101 students also spend a high amount of their viewing time (36-99% of the time) on news/current affairs programming (19.6% versus Co St 215/210's 15.6% and Bus/Soc's 13.6%).

A higher percentage of Co St 101 students (11.3%)
devote high amounts of reading time (51-94% of the time) to newspapers than do Bus/Soc (8.9%) and Co St 215/210 students (8.8%).

The most frequent radio listeners are the Co St 101 students, having 20.8% of their section falling in the column of high levels of radio listening (31-70 hours a week). The comparative percentages are: Bus/Soc--10.4%, and Co St 215/210--2.9%.

Radio music is listened to more regularly (51-99% of the time) by Co St 101 students. Seventy-four percent (74%) of these students, 69.6% of Bus/Soc and 61.8% of the Co St 215/210 students listen to high amounts of radio music.

Although there is little differentiation between the percentages in high grades received at the University level, more Co St 101 students have a high (A) average (36%) than the Co St 215/210 and Bus/Soc students (34.3% and 33.3%).

More of the Co St 215/210 students than the others had an A average in high school--38.2% as opposed to Co St 101’s 33.3% and Bus/Soc’s 29.8%.

With regard to test results, the Co St 215/210 students had greater percentages of their class in the high columns for: the total number of sensual references to the print stimulus, and the total number of description words in reference to the written passage. More of these
students also made more errors. The comparative percentages have been previously listed in the findings of the Co St 101 test results.

More of the 215/210 students had higher word totals describing both the print and the audio-visual stimuli. High totals to the print source range from 116 to 208, and high A/V totals range from 116 to 213. The percentage of students belonging to the high total category for print are: Co St 215/210--28.6%, Co St 101--20.8% and Bus/Soc--16.7%. The student percentages in the high total column for the audio-visual stimulus are: Co St 215/210--31.4%, Bus/Soc--20.6% and Co St 101--27.8%.

The Co St 215/210 students read less than the other respondents (8.5% in the high amount of reading column as opposed to Co St 101's 17% and Bus/Soc's 20%). The written genre which is read by more 215/210 students is the entertainment magazine. 3.3% of the 215/210 class are high readers, and 0% of the other students spend 51-94% of their reading time with entertainment magazines.

Although the Co St 215/210 students listen the least to the radio, 15.2% of them spend 51-99% of their listening time with radio news. The comparative percentages of Bus/Soc and Co St 101 students which fall in the high radio listening category are, respectively, 8.5% and 7.4%.
Observations

The cross-tabulations with television viewing as the independent variable and reading factors as dependent variables, reveal a few important relationships. There is a positive, significant relationship (p: \( x^2<0.04 \)) between TV viewing and newspaper reading. This holds true for the Co St 101 students who view the most television and read newspapers more frequently. More news/current affairs programmes are also viewed by them. Information intake from both media seems to be information oriented.

The Business/Sociology findings support an inverse, significant relationship (0.005) between television viewing and non-fiction book reading. The less they view TV, the more reading time is devoted to non-fiction material. The Bus/Soc students also view more TV movies, sports, game shows and documentaries. These students appear to use television as an entertainment medium. They read non-fiction books for information acquisition. It is likely that these books are academic texts.

The students' expectations of both newspapers and TV are relative. Information or entertainment orientation could depend on the subjects' background. Perhaps an influential variable is their practical media exposure. The Co St 101 students seem to take a more serious approach to electronic information dissemination, perhaps because
of their critical media skills acquired in Communication Studies. (They do, however, listen to radio primarily for music.)

In the same way that the Bus/Soc students turn to TV for entertainment, Co St 215/210 expect books to provide 'escape' and moments of pleasure and relaxation. The Co St 215/210 classes rate third in reading levels, first in reading entertainment magazines, second in TV viewing and in the viewing of news/current affairs programmes, and first in listening to radio news in spite of spending the least amount of time with radio. Thus, electronic media are referred to for serious content, whereas print, to the 215/210 students, offers entertainment fare.

The influence of these exposure habits on comprehensive abilities and test results is not consistent in the findings, but a few observations may be made. An inverse, yet insignificant relationship exists between TV viewing and the total number of words used to respond to the audio-visual stimulus. The Co St 101 students view high amounts of TV content, and responded with low word totals. Co St 215/210 students view less television and responded with the highest total number of words to the A/V source. This relationship, however, cannot be observed in the findings for the Bus/Soc students.

Further observations regarding test results and audio-visual viewing habits expand an idea suggested by
the previous statements. The data of the Business/Sociology students show inverse relationships between movie going and the number of sensual references and descriptive words used to describe the audio-visual segment. The Co St 101 students' responses also depict these same relationships.

In addition to these instances, high movie attendance and high TV viewing are accompanied by: a low total number of sensual references to print, and a low total number of words used to respond to the A/V stimulus. The latter is an inverse, almost significant relationship, (0.06). Also, the Co St 215/210 section is positively and significantly related to the amount of description to print, and is insignificantly related to a higher total of sensual references to print.

The point of reviewing all of these relationships is to observe the tendency of more audio-visual viewing inhibiting emotional involvement with audio-visual messages. It seems that audio-visual skills and awareness impose a distance between the techniques and their potential effect on the viewer.

Through personal experience, I have learned that with A/V skills training, it is difficult to suspend disbelief and not be critical of the electronic communication of a story. The potential effects of A/V techniques become stifled because of an acquired sen-
sitivity, and partial immunity, to audio-visuals. This is likely to be the reason for the Business/Sociology students' higher totals of sensual references and descriptive words about the audio-visual stimuli.

The Co St 215/210 students have the highest grade averages in high school, and slightly lower averages than the Co St 101 class in university. Their good academic results are likely to be an important factor in determining their highest overall response totals to both communication modes. Overall, they are likely to be better students.

Positive significant relationships exist between university grade averages and: the total number of responses to print (0.01); the total amount of description of the viewed (0.00) and read passages (0.01). Strong, yet insignificant positive relationships exist between university average and the total number of words responding to the A/V source, as well as between average high school grades and each of these four listed factors.
CHAPTER VI

SUMMARY AND CONCLUSIONS

In order to summarize the findings from the thesis' literature review and comprehension test, the original hypotheses on which the test was based will be restated and verified or nullified. Related observations will be made.

Hypothesis #1: There will be a greater number of responses, (i.e. more description and more detail), to the audio-visual stimulus than to the verbal stimulus.

The related content analyses counted both the total number of words used to respond to each stimulus and the number of descriptive words used to describe the content of each stimulus. In both cases the totals were higher for the audio-visual stimulus. Hypothesis #1 is valid.

Supporting these findings is the consistent higher rate of 'no response' to the printed message. The audio-visual content, in general, was an easier form of communication to understand, and to respond to, regardless of the respondents' media exposure background.

This greater ease of comprehension is explained in the Audio-Visual Perception chapter which reveals the
following information. The dual coding processes of pictures promote greater recall because of viewers' ability to retrieve information from either a verbal or pictorial memory representation. The complexity of visuals allows a viewer to select and integrate more information than from a verbal message. The provision of visual detail and concrete representations promote better recall. Vivid representations of reality make comprehension of a visual message easier than one in print. Results from brain wave research show lower levels of brain activity while viewing television than while reading a magazine. Television is a medium which easily communicates a message. Research findings such as these rationalize the thesis' test results indicating greater ability to respond to audio-visual stimuli.

Hypothesis #2: The responses to the audio-visual stimulus will be more varied than the responses to the verbal stimulus, (i.e. there will be greater deviation from the original description and between the responses.)

The comprehension test results indicate somewhat fewer themes noted in reference to the audio-visual content, but much greater diversity of description of the A/V stimulus. Hypothesis #2 is partially supported by the thesis' test results.

The review of the literature in Chapter III con-
tains an observation stating that iconic images do not
have "an intrinsic generality of reference"\(^1\) like words
do. Audio-visual information can be very specific and
concrete, so that common conceptions of dominant actions
and images can result. Thus, logically, the A/V message
should evoke greater similarity in general comprehension.

However, at the same time, the abundance of specific
audio-visual information allows greater selection to take
place. Perceptions, though common, are not as restricted
as with print. Changing eye fixations and potential
emotional involvement reduces standardization in detailed
thought.

The greatest variation was noticed in the responses
to both stimuli by the second year television and film
production students. Lowest response variation in
reference to both communication modes was found in the
introductory media students' responses. An explanation
for this occurrence is not known, but the difference
between the total number of words used to respond to the
stimuli by the Co St 101 and Co St 215/210 students may be
a significant factor. There were simply fewer responses
made by the Co St 101 students.

Hypothesis #3: The responses to the audio-visual
stimulus will include more emotional and sensual refer-
cences than the responses to the verbal stimulus.
The content analysis of responses combined emotional and sensual references. Results show that, overall, the total number of sensual references made to the audio-visual segments was slightly higher than those made to the printed passage. Sensual references were consistent throughout audio-visual perception. Hypothesis #3 is supported.

Audio-visuals are believed to be more impressionistic because of their sensory appeal. Impressions and emotions are remembered prior to content, therefore, it is understood how sensory involvement with audio-visuals elicits more references which are sensual in nature.

Furthermore, more emotional involvement by viewers is evident in the greater number of 'empathetic-participant' references made to the audio-visual messages. More responses by viewers fell into the 'empathetic-participant' categories of: Impressionistic Description, Emotion and Animation of the Inanimate. (See Table 7)

With regard to class responses, the Business/Sociology students made the highest number of sensual references to the A/V stimulus, and the Communication Studies 215/210 students made the highest number of sensual references to the printed messages. The reasoning behind this is likely to be that audio-visual skills and awareness inhibit emotional involvement
because of technical sensitivity and expectations. A distance is imposed between audio-visual techniques and their potential effect on the viewer.

Hypothesis #4: Those who spent more time with audio-visual media will comprehend the visual segments more easily, (i.e. a greater number of responses and more description would indicate ease of comprehension).

The Communication Studies 215/210 students having the most practical media exposure did respond with more words to both A/V and written stimuli. They also used the highest number of descriptive words to respond to the print source. The Business/Sociology students had the highest total of descriptive words in reference to the audio-visual stimulus.

If the hypothesis is true, the Communication Studies 101 students should have the second highest response totals because they have spent the second highest amount of practical exposure time with television, read most newspapers, attend more movies and listen to the radio most frequently. Their media exposure level in general, is high, and yet they rank the lowest in all of the totals for response rates. They also have the highest rates of 'no response' to both communication modes.

Hypothesis #4 is supported to the extent that the
second year television and film students do comprehend the audio-visual and print messages more easily than the subjects having lower levels of practical media exposure. However, a hierarchical trend does not exist as anticipated. If the suggested hierarchy of audio-visual sophistication were legitimate, (i.e. A/V 'buffs' represented by the Bus/Soc classes, A/V 'critics' represented by Co St 101 students, and the A/V 'producers' being the TV and film production students), the Co St 101 students would have had less difficulty responding to the A/V stimulus than the Business/Sociology students having very low levels of practical media exposure. The influence of practical media exposure thus appears to be inconsistent. No trend exists to prove that the higher level of A/V sophistication results in greater ease of audio-visual comprehension.

The suggested hierarchy of audio-visual sophistication does, however, reveal different modes of media responses. Observations regarding the cross-tabulation findings reveal different mass media expectations and uses for each section of respondents. Media expectations seem to be relative to subjects' personal observational and learning strengths.

There appear to be three different media respondent types:

1) Business/Sociology -- media 'buffs', media 'know-nothings'.
2) Communication Studies 101—media-wise critics; and


This grouping of respondent types is based on different cognitive sensitivities to the potential use of media.

The Business/Sociology students are the only respondents who watch televised game shows. They also watch the most sports, documentaries and TV movies. Their use of the audio-visual media seems to be somewhat unthinking. Information intake via this media form is primarily for entertainment. A critical awareness of this intake does not seem to exist.

The Business/Sociology students' information intake via print, however, seems to be taken more seriously. These students rate first in general reading levels, as well as in reading levels of non-fiction books. A more analytical approach is likely taken to information acquisition via print.

The second group of media-wise Communication Studies 101 students differs from the previous group primarily because of their awareness of the costs and benefits of media use. Their broadening perspective of media functioning in society leads to a more deliberate, more critical and logical use of media. The media are handled with circumspection because they are known to be of tremendous importance.
Supporting these observations are the findings indicating the Co St 101 students having the highest levels of: general TV viewing; news/current affairs programme viewing; movie-going; newspaper reading; and radio listening.

The third media respondent type is the media artist or producer, who is represented by the Co St 215/210 students. Their acquisition of audio-visual skills enables them to encode and decode audio-visuals, as well as to understand and appreciate the artistry, nuances and special effects involved in electronic media expression.

There appears to be no consistent trend in the information intake of the Co St 215/210 students. They rate first in reading entertainment magazines and in listening to radio news. Their exposure rates to other media forms do not appear to be significant. However, this variation does suggest that they have a broad perspective of media capabilities, and also have a healthy and balanced intake of information. This is apparent when one considers the successful test results of these Co St 215/210 students, for both the audio-visual and print stimuli.

One objective of the thesis' examination was to draw a demographic profile of an 'audio-visual literate'. This cannot be done, although it is known that varying amounts and kinds of media exposure inevitably affect an individual's ability to encode
and decode audio-visual messages. Different levels and kinds of A/V skills do exist. Means of evaluating these skills will be noted in the following chapter. The final chapter then summarizes the importance of acquiring particular audio-visual skills.

FOOTNOTE—CHAPITÈR VI

CHAPTER VII

SUGGESTIONS FOR IMPROVEMENT

It is important for scholars to monitor what may be the beginning of larger changes in formats and patterns of communication. Further understanding could be gained by replicating this kind of study over a number of years. The presence or absence of any progressive changes in literacy and comprehension could be determined. A few suggestions for further related studies will be outlined in this chapter:

1) Throughout the thesis, several educational implications are made, but the presented findings and observations are not specifically valuable to education. A similar kind of study could be conducted in order to evaluate the effectiveness of instructional A/V modules having specific learning objectives. The effectiveness of particular media presentations designed for teaching specific lessons can be evaluated to discover ideal learning conditions.

2) Assumptions have been made regarding current learning and teaching patterns and environments. Teaching methods and means of evaluation should be
surveyed to accurately understand the state of education in an electronic society. The suitability of practised and proposed educational methods can be determined by ongoing examination of the educational system, its instructors, teaching methods, means of evaluation and student results.

3) As audio-visual related research develops, more information will be available on A/V expression and comprehension. The majority of related research is currently devoted to comprehension of the static picture versus print. Audio-visual communication, however, makes different demands on a viewer than does visual communication alone. These demands and the consequent developments in the viewer should be understood. Developing communication 'norms' can then be monitored by further examining the characteristics, abilities and implications of audio-visual expression.

4) Ideal conditions for studying advancing trends in communication would be to have a universe partially composed of subjects having no electronic communication exposure. The communication skills of a dominantly print-oriented society of twenty-five years ago should have been examined.

Unfortunately, at this time, alterations in patterns of communication from the past to the present can merely be speculated. A phase of prominent
changes may have already passed and a new phase begun. It is anticipated that further changes will take place with further technological developments. The implications of media effects can be serious, and the status quo of prominent social institutions can be threatened. (See Chapters II and VIII for related discussions.) If these changes are to be beneficial to social development, they must be monitored—now, before dysfunctional integration takes hold and negates any attempts for 'social redemption'.

5) Content analyses of print and audio-visual characteristics and comprehension could be more objective than the methods used in the thesis. The following suggestions could be used for replication of the thesis' study, as well as for verification and/or expansion of the thesis' test results and observations.

a) The study's conclusions suggest different 'types' of media respondents. To determine whether one is a detached user of media, a media critic or a media artist, different audio-visual and print stimuli would be presented to subjects having different kinds and amounts of media exposure. To chart responses to the stimuli, the subjects receive a list of words. Prior to testing,
categories such as physical observations, sensory appeal, and emotional involvement would be determined. Each category would have the same number of words. The words belonging to all categories would be listed in a scrambled order on the sheets given to the respondents.

In response to each stimulus, the subjects would circle the words they feel apply to the presented stimulus. There would be one sheet of words per stimulus. The content analyses of responses would consist of calculating the number of categorical words per stimulus. Observational strengths of each subject could be noted. (Prior to testing, the words belonging to each category should be presented to a panel of 'judges' as a pretest, to verify their inclusion in a particular category.)

b) To analyse the degree to which one observes in a 'detached-observer' or 'empathetic-participant' mode, a scale could be used. Categories and related words would be listed. Examples are: Sensations—physical, emotional, aesthetic; and Surroundings—physical characteristics, animation.
These categories and words would be charted.

A scale of 1 to 5 would be used, with each number being qualified to indicate a specific degree of involvement. Number 1 would typify the 'detached-observer' mode and would be checked if a respondent made a 'passing mention' of the categorical factor, such as a physical sensation.

The other extreme, the 'empathetic-participant' mode would be represented by the number 5. This point allocation would be chosen if the respondent made reference to the category's item with 'a lot of mention and striking words'. Numbers 2, 3 and 4 would have similar response descriptions. The scale would appear horizontally on the chart which vertically lists the categories and their items. Each respondent's points would be totalled, and the degree of involvement with a specific stimulus could be noted.

c) To further evaluate one's degree of stimulus involvement, a biofeedback device such as a Galvanic Skin Response (GSR) could be used. Analysis of a subject's response would thus be made during the viewing or reading process.
d) When calculating the amount of description used to respond to a stimulus, a point system could be used for more objective analysis. This point system determining the level of description as simple, mid-way or hard, could be the following.

\[
\begin{array}{ccc}
\text{simple} & \text{mid-way} & \text{hard} \\
\downarrow & \downarrow & \downarrow \\
\text{single word} & \text{qualified verb/noun} & \text{greater qualification or unusual word} \\
1 \text{ point} & 2 \text{ points} & 3 \text{ points}
\end{array}
\]

One's level of descriptive abilities could thus be objectively quantified.

e) One's ability to comprehend print communication differently than audio-visual may be due to one's acquired visual or verbal strength. An individual may be an audile of a visile, whereby learning from one particular kind of source is easier and more natural.

A self-inventory could be designed to determine one's visual or verbal orientation. The questions on the self-inventory could ask the subject, for example, if s/he learns new words by hearing them spoken or seeing them in print, and if s/he remembers content more accurately after viewing it or reading
about it. Further questions of this nature would also suggest one's linear or gestalt orientation, one's left or right-brain hemisphere dominance. One's ease in comprehension of a written or audio-visual stimulus may be supported by the results of this kind of self-inventory.
CHAPTER VIII

THE INTEGRATION OF 'AUDIO-VISUAL LITERACY'

The technological evolution of electronic communication has given rise to forms of expression and understanding which differ from the characteristics and abilities of traditional verbal communication. Habitual interaction with audio-visual media and their corresponding 'languages' alters the functional capabilities of verbal literacy skills. Technological advancements have developed "dimensions of reality beyond the limits of our language's vocal range."\textsuperscript{1} The verbal language alone is no longer a sufficient mode of communication because, with the ever-present technological revolution, "our brains have out-evolved our tongues."\textsuperscript{2} The ideal situation for the continuation of functional literacy skills, would be the coalescence of both verbal and audio-visual literacy styles as complementary, rather than competitive units.

Social progress can continue only by becoming aware of, adapting to, and integrating social changes. Alterations in communication styles should also be integrated if the potential of these advancements is to be used advantageously.
It is recommended that communication skills resulting from technological progress be formally integrated with the expectations and requirements of traditional functional literacy skills. Various definitions of 'functional literacy' can be applied to the audio-visual realm of communication. A number of these definitions will be discussed in order to show how audio-visual communication skills can aid fulfillment of social expectations of 'functional literacy'. The need for integrating A/V communication skills will be rationalized.

The basic components of literacy include abilities for generalizing and "particularizing . . . . i.e. having a capacity both to form adequate generalizations and to support them with concrete or particular evidence or argument." The thesis' test respondents generally demonstrate this ability by noting content themes in the audio-visual passage and expanding these trains of thought in specific detail. Subjects' comprehensive abilities were actually more reliable in reference to audio-visuals than they were to print.

A Unesco study regarding world literacy levels determines that "a person (is) functionally literate when he (can) read and write enough to be effective in the activities normal for his culture and group." The North American concept of literacy, then, seems destined to include the understanding and application of the meta-
orphic audio-visual language. With media-related activities playing a dominant role in a person's life, the notion of "the ability to encode (write) and decode (read) visual language" becomes a component of functional literacy. Coping with electronic communication is considered necessary in today's society.

Furthermore, a subconscious understanding of audio-visual components exists now. It is felt that, with the gradual development and broader consciousness of the audio-visual 'lexicon', viewers can learn how to 'read' A/V material more effectively.

More students are labelled as being illiterate, partly because they are "marked by an inferiority to an expected standard of familiarity of language." The current 'expected standard', however, is not a relevant scale of ability which includes strengths in modes of communication and environmental coping other than the conventional verbal code. The definition of functional literacy requires alteration to encompass the skills inevitably acquired by environmental processes such as man's interaction with mass media.

The traditional concept of functional literacy assumes that the verbal language is superior to the other human 'encoding technologies' of sight, sound and touch. It is understood that the acquisition of verbal literacy is an important foundation in communication. Verbal
learning is important because "the more the child can begin to translate experience into verbal form, the faster he can begin to realize the potential of the human brain." However, this should not undermine the development of other encoding systems which still need time and habituation for greater maturation. The other senses are simply not yet as functional.

The point is not to restrict some kinds of sensory input or replace others, but rather to be realistic in considering the relative potential of each, both to purpose and receptiveness of individuals.

If a function of education is to expand personal growth—to convey ideas and abilities which will make students more environmentally competent, and if the students are receptive to, and learn from, audio-visual aids and activities, it seems logical that audio-visual forms of expression become a part of the school curriculum. Dropping conventional literacy rates should not be reacted to by advocating the judicious removal of visual aids from the classroom. On the contrary, there are many benefits to integrating novel communication modes with the traditional. Education must move onto a new plateau.

According to Arnold Toynbee, characteristics of the current status of education resemble factors influencing the decline of the Roman and Chinese empires. He attributes their decline to the
petrification of the system of education. Both degenerated while formal education in book learning became divorced from a spontaneous apprenticeship for life. A greater gap will exist between the world in the classroom and the outside world if adamant resistance to educational change remains. Without change, further alienation is inevitable.

Being in an uncertain state of transition, the educational system is lacking clearly defined, updated roles. In this state, administrators find themselves struggling for bureaucratic survival. Administrative efforts become devoted to defending the institution from social changes which threaten its current status. With a prominent defence strategy being the attempt to incorporate strictly Back-to-Basics programmes, the system becomes even further petrified and more alienated from the purposes of education.

Reading and writing techniques help students to learn how to think clearly, but it is a crippling fallacy—perpetuated by petrified curricula, grading systems and performing criteria—that any and all formal education must be based upon the ability to read and write in print.

It is important that the 'languages' being used by media be taught in school. Without integration of the visual languages, students will receive less from their educational experiences and will be more susceptible
to the influence of, and manipulation by the media 'specialists' who control technology, and thus, control information. The motivation behind our media involvement, the kind of involvement with, and reaction to media processes in information dissemination, should become public knowledge, lest our ignorance be taken advantage of. In a culture dominated by electronic communication, one can more readily become an intellectually active social participant by examining, understanding, and adapting to the electronic environment.

The concept of visual literacy entails much more than is generally understood. The very casual social acceptance of audio-visual media demands that a critical awareness be developed of the distorted reality which is electronically communicated to us.

Just as literacy implies the ability to read critically as well as mechanically, so visual literacy is intended to develop 'critical viewing skills'—by teaching—students to become aware of such things as the point of view expressed in a documentary, how a television newscast is edited, or how a commercial glamorizes a product, through the manipulation of photography and lighting. 12

A critical awareness of the decision-making and production processes involved in media presentations is necessary for the attainment of functional life skills.

Inundation by real-life programming can begin to erase the lines of demarcation between television and film content and real life. All information should not
be passively received and integrated with one's real world perspective. With television and film studies, one can learn how to critically interpret audio-visual messages and rationalize the use or abuse of particular techniques.

But without film study, viewers can 'read' a film all wrong while not even understanding a fraction of what is clearly there to see and hear.¹³

With training, media patrons are able to interpret and understand the message and its implications. Taking a critical stance is very important.

This critical ability also constitutes a part of the literacy concept—maintaining control over behaviour.

So defined, literacy becomes the individual's assertion of his power over his behaviour—his refusal to permit his behaviour to be modified without his conscious acquiescence. Literacy is independent behaviour consciously shaping and being shaped by media of all kinds.¹⁴

Literacy also implies the ability to write as well as read. Thus, visual literacy is concerned with teaching students how to create visual messages as well as understand them... the stated goal... is to enable students to 'become active users as well as passive consumers' of visual media.¹⁵

Speed and fragmentation of information are important factors which determine patterns of information consumption. A very important implication of the transmission of electronic communication is noted by Ben Bagdikian.
There are real disadvantages to the swiftness and pervasiveness of modern communications. They encourage reaction to minor, immediate events rather than major trends. Long lapses between the receiving of information permit study and contemplation.

The immediacy of information dissemination and comprehension leaves little time for evaluation. Fragmented and distorted comprehension of 'real-world' situations questions the participatory abilities of citizens in a democratic society. Conscious awareness of current means of information dissemination and intake can help curb the potentially negative effects of swift transmission and passive consumption. It is important to acquire and maintain a critical perspective of information dissemination via electronic means.

If the educational system takes this stance of improving awareness of the electronic environment, the combination of traditional and developing literacy modes is inevitable. One mode cannot successfully survive without the other. The origins of most audio-visual information and entertainment productions lie in verbal organization, primarily in a script. Film criticism incorporates the verbal organization of thought in essay form. Photography may be used to support observations of the world. Combining various modes of expression expand awareness.

It is interesting to note that the potential of learning is greater when one's interest and motivation
are higher. Relevance of material is a determinant of interest level. When a student, who feels alienated from the verbal system, feels encouraged to learn via audio-visual production, a stronger sense of security in his abilities may be instilled. By learning how the written language supplements the audio-visual, the student may find more relevance in language use.

If students experience some success in an academic area that was previously frustrating and discouraging, they are likely to feel an increase in self-esteem. With low self-esteem and emotional difficulties being a major block to reading skills, it can be understood how media involvement (which is habitual beyond the school borders) being brought into the classroom can influence reading abilities as well.

Mere integration of audio-visuals with classroom activities is not enough. Determination of objectives, subject relevance and the skilful execution of audio-visuals are of prime importance. The audio-visuals must exist only if they aid effective teaching. "Visuals make sense sometimes, sometimes they are meaningless." If arbitrary, frequent use becomes the norm, learning is simply being impeded. Without specific objectives for facilitating learning of particular concepts, the use of arbitrary visuals is meaningless. Purposeful audio-visuals could be a film showing the cell division of a fertile ovum, slides depicting close-ups of a nuclear reactor core.
Even when visuals are used independently, the design of class production projects must also be structured in a particular way, for a particular reason, depending on what the aims of the exercise are. An audio-visual production can be so tightly structured that the students do no more than shoot pre-determined sequences of pictures. On the other hand, it can be so unstructured that students must research both photographic techniques and the content of what they are producing. 

It also becomes apparent, then, that it is unnecessary to isolate audio-visual production activities from traditional literacy activities. Reading and writing skills are generally an integral part of a successful and effective audio-visual presentation. The school, then, can effectively cope with the new consciousness and skills of today's 'new learners' by allowing them to create, organize and coordinate ideas in more than one communication mode.

Instructional technology is capable, then, of playing a pivotal role in facilitating alternative learning opportunities toward meeting diverse and occasionally conflicting goals and objectives in alternative learning systems.

But what is required prior to the integration of instructional technology, is an adequate comprehension, on the part of instructors, of the nature, functions, capabilities
and roles of the technology and instructional technologists.

The educational system's inclusion of instructional technologists would demand the acquisition of professional skills. If instructors have no expertise, potentially dynamic media can be ineffectual. The current disrespect for visuals in the classroom is due largely to ineffective utility and instruction. Ineffective training is the precedent cause. Solutions to these 'malpractice' problems could be the following: "1) certification, 2) professional association, 3) insurance, 4) rigid academic training, 5) code of ethics." 21

Another important observation is that education must not only use modern devices effectively, but also must prepare students for an electronic environment that has heightened sensory perception and supplanted traditional linear logic. The challenge, therefore, is not only how to teach with technological tools, but what to teach because of them. 22

Technological advancements have given students the opportunity to belong to a generation of major scientific and technical discoveries which are shaping the future world. Youths should be made aware of the personal and social implications of these advancements. Education must help them prepare to mitigate or solve the problems and weaknesses in the world. Their formal education, then, could consist of
more analysis of premises, more examination of alternatives, more effort to connect facts with ideas—plus, of course, in tracing connection between one subject and another, between the individual issue and society at large; finally to the 'larger themes of moral and intellectual life'.

Educational methods designed for the development of these coping abilities are presently being explored and implemented. Experiential learning via simulation games and structured group activities activate personal problem-sensing and problem-solving capacities. The basic principles of self-directed learning and learning by doing tend to complement the learning skills media patrons have already begun to acquire by their vicarious experiences with media. Rather than following the academic rigidity of the pedagogical 'banking concept' of learning, educators can begin to create a multilogue within the classroom situation, whereby, through a number of techniques, the instructor becomes a 'coach' to facilitate the exchange of ideas and the emergence of the group's knowledge and abilities. Thus, both students and instructors can participate in the teaching and learning processes.

A futurist examination of long-term social problems indicates two very relevant problems—the lack of 'functional life skills' and the 'decreasing utility of education'. Regarding the latter, it is stated that,

The formal educational system may be
increasingly inefficient in training people to perform needed tasks, especially those of coping with a technologically advanced society.\textsuperscript{24} Higher education's contribution to developing social needs seems to be declining, partly because of the curriculum disregard for the development of 'functional life skills'. It has been indicated that "less than half the nation's adults possess the basic skills to function well in today's society."\textsuperscript{25} This deficiency lies not only in basic writing and arithmetic skills, but also in general communication skills and awareness. As society grows increasingly complex by means of technological developments, citizens can become so much more alienated from their society without grasping an understanding of corresponding technological skills and implications.

Education is intended to prepare an individual for life. If life is largely dependent on interaction with mass media, then knowledge and skills acquisition related to this field is required. This is even more important when one takes to heart a prediction made by Ithiel de Sola Poole, whereby, by 1980, 51 percent of the job market will be information oriented. Thus, in addition to increasing environmental coping abilities, the integration of communication studies with current curricula can aid in the development of technologists
and personnel who are involved in a vital and ever-growing social process—information dissemination.

Thus, it is apparent that the term 'functional literacy' requires examination for inclusion of developing modes of expression other than the verbal language. It also becomes apparent that, with the establishment of fundamental 'ground rules' for institutionalising new modes of communication, audio-visual communication can provide an advantageous realm of thought and understanding.
FOOTNOTES--CHAPTER VIII


2 Ibid., p. 42.

3 Colin Norman and Stella Wynne-Edwards, The Queen's English: Standards of Literacy Among Undergraduates in the Faculty of Arts and Science at Queen's University, 1975-76 (Kingston: Queen's University, 1976), p. 72.


6 Population Reference Bureau, p. 4.


8 Ibid.

9 Norman and Wayne-Edwards, p. 76.

10 Goldman and Burnett, p. 30.

11 Ibid., p. XIV.


13 Goldman and Burnett, p. 169.


15 Adler, p. 24.

17 David Barber-Smith and Susan Reilly, "Use Media to Motivate Reading," *Audiovisual Instruction* 22 (December 1977): 34.


22 Goldman and Burnett, p. 139.

23 Ibid., p. 121.


25 Ibid., p. 275.
APPENDIX A

READING PASSAGE FROM "FLYING A RED KITE"

PLEASE READ THE FOLLOWING PASSAGE:

"Eat some more," he said, "while I try the kite again." She bent absorbedly to the task of hunting them out, and he walked down the road for some distance and then turned to run up towards her. This time he gave the kite plenty of string before he began to move; he ran as hard as he could, panting and handing the string out over his shoulders; burning his fingers as it slid through them. All at once he felt the line pull and pulse as if there were a living thing on the other end and he turned on his heel and watched while the kite danced into the upper air-currents above the treetops and began to soar up and up. He gave it more line and in an instant it pulled high up away from him across the fence, two hundred feet and more above him, up over the cemetery where it steadied and hung, bright red in the sunshine. Deedee came running down to him, laughing with excitement and pleasure and singing joyfully about the gingerbread man, and he knelt in the dusty roadway and put his arms around her, placing her hands on the line between his. They gazed, squinting in the sun, at the flying red thing, and he turned away and saw in the shadow of her cheek and on her lips and chin the dark rich red of the pulp and juice of the crushed raspberries.

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APPENDIX B

READING PASSAGE FROM
"AN OCCURRENCE AT OWL CREEK BRIDGE"

PLEASE READ THE FOLLOWING PASSAGE:

The two sentinels fired again, independently and ineffectually. The hunted man saw all this over his shoulder; he was now swimming vigorously with the current. His brain was as energetic as his arms and legs; he thought with the rapidity of lightning.

Suddenly he felt himself whirled round and round--spinning like a top. The water, the banks, the forest, the new distant bridge, fort and men--all were commingled and blurred. Objects were represented by their colors only; circular horizontal streaks of color--that was all he saw. He had been caught in a vortex and was being whirled on with a velocity of advance and gyration that made him giddy and sick. In a few moments he was flung upon the gravel at the foot of the left bank of the stream--the southern bank--and behind a projecting point which concealed him from his enemies. The sudden arrest of his motion, the abrasion of one of his hands on the gravel, restored him, and he wept with delight. He dug his fingers into the sand, threw it over himself in handfuls and audibly blessed it. It looked like diamonds, rubies, emeralds; he could think of nothing beautiful which it did not resemble. The trees upon the bank were giant garden plants; he noted a definite order in their arrangement, inhaled the fragrance of their blooms. A strange, roseate light shone through the spaces among their trunks and the wind made in their branches the music of Aeolian harps. He had no wish to perfect his escape--was content to remain in that enchanting spot until retaken.

A whiz and rattle of grapeshot among the branches high above his head roused him from his dream. The baffled cannoneer had fired him a random farewell. He sprang to his feet, rushed up the sloping bank, and plunged into the forest.
APPENDIX C

THE QUESTIONNAIRE

Please read the following statements and questions carefully. Respond to them in the manner explained.

The numbers shown in parentheses should be ignored. They are included only to assist the processing of your answers.

We would first like to know a little about how you spend your leisure time.

(1,2) 1. Average the number of hours per week that you spend reading. This total includes time spent on academic, business and leisure-related reading.

______ hours per week.

2. Percentage the amount of time you spend reading the following types of material. (Divide 100%)

(3,4) news magazines...............( )%

(5,6) entertainment magazines..........( )%

(7,8) newspapers.......................( )%

(9,10) fiction books....................( )%

(11,12) non-fiction books................( )%

TOTAL = 100 %

(13,14) 3. Average the number of hours per week that you spend listening to the radio

______ hours per week

4. Percentage the amount of time spent listening to the following radio programme formats. (Divide 100%)

(15,16) news and current affairs.........( )%

(17,18) music...........................( )%

(19,20) talk show........................( )%

TOTAL = 100 %

5. Average the number of hours per week that you watch television.

______ hours per week
6. Percentage the amount of time spent viewing the following television programme formats. (Divide 100%)

(23,23) news and current affairs..................( ) %
(25,26) documentary................................( ) %
(27,28) adventure/drama............................( ) %
(29,30) variety show...................................( ) %
(31,32) movies (on television)......................( ) %
(33,34) situation comedy............................( ) %
(35,36) sports...........................................( ) %
(37,38) game shows....................................( ) %

TOTAL = 100 %

(39,40) 7. On the average, how many times in a two month period do you go to the movies?

_________ time(s) per 2 months

(41) 8. With a (✓) or (x), indicate which of the following activities regularly accompany television viewing.

- listening to radio/stereo.........................( ) %
- socializing...........................................( ) %
- paper work (education or business related).....( ) %
- household chore...................................( ) %
- none of the above..................................( ) %
- other (please specify)______________________

9. With a (✓) or (x), indicate which of the following activities you (have) participate(d) in, and in what capacity. As an example, if I drew in my spare time, and I had recently taken a fine arts class, I would put a check in the boxes marked with an *.

<table>
<thead>
<tr>
<th></th>
<th>education-related</th>
<th>job-related</th>
<th>personal activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(42) photography</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(43) filmmaking</td>
<td></td>
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<tr>
<td>(44) TV production</td>
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<tr>
<td>(45) film/tv analysis</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>(46) drawing/painting</td>
<td>*</td>
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<td>*</td>
</tr>
</tbody>
</table>
WE'D NOW LIKE TO KNOW A LITTLE ABOUT YOUR EDUCATIONAL BACKGROUND.

10. How many years of high school have you completed?
   0 ( ) [If 0 years: Go to question #13]
   1 ( )
   2 ( )
   3 ( )
   4 ( )
   5 ( )

11. How many subjects studied in your final year of high school fell into each of the following categories? (Distribute the total number of classes taken.)
   (48) Arts ( )
   (49) Languages ( )
   (50) Sciences ( )
   (51) Social Sciences ( )

12. What was your average grade in your final year of high school?
   A ( )
   B ( )
   C ( )
   D ( )

13. How many years of university/college have you completed?
   0 ( ) [If 0 years: Go to question #16]
   1 ( )
   2 ( )
   3 ( )
   4 ( )
   5 ( )
   6+ ( )

14. In university/college, what was/is your major field of study?

15. What was/is your average grade in your university/college studies?
   A ( )
   B ( )
   C ( )
   D ( )
NOW, A FEW QUESTIONS ABOUT YOURSELF.

(56) 16. Do you work on a full-time basis?

YES ( )

NO ( )

(57) If yes: What is your occupation?

____________________

(58) 17. What is your sex?

M ( )

F ( )

(59) 18. How old are you?

18-20 ( )

21-23 ( )

24-29 ( )

30-39 ( )

40-49 ( )

50+ ( )

(60) 19. What is your family's nationality?

____________________

(61) 20. When you were growing up, what was the occupation of the main 'bread winner' in the household?

____________________

THAT COMPLETES THE QUESTIONNAIRE. THANK YOU FOR YOUR ASSISTANCE.
APPENDIX D

FILL-IN-THE-BLANK STATEMENTS FOR "FLYING A RED KITE"

Complete the following statements in reference to the material you have just read or viewed.

1. The ___________________________ man ___________________________
   in order to ___________________________.

2. Suddenly he felt ___________________________.

3. His surroundings ___________________________ and ___________________________.

4. He then knelt ___________________________, where he ___________________________.

5. The kite ___________________________ and the man ___________________________.

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APPENDIX E

FILL-IN-THE-BLANK STATEMENTS FOR
"AN OCCURRENCE AT OWL CREEK BRIDGE"

Complete the following statements in reference to the material you have just read or viewed.

1. The ___________________________ man ___________________________
in order to ____________________________ .

2. Suddenly he felt ____________________________ .

3. His surroundings ____________________________ and ____________________________ .

4. He then landed ____________________________ , where he ____________________________ .

5. A shot ____________________________ and the man ____________________________ .
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