

A four-way analysis of variance was run on the test scores. Only the control versus treatment comparison produced significant results. A Scheffe multiple comparison test indicated the group means were significantly different ( $p < .01$ ) for both types of questions.

The results showed that children who viewed the film were:

- 1) more aware of Multi-sensory ways of exploring the natural environment than those who did not view the film,
- 2) had a more positive attitude towards exploring the natural environment using all their senses than those who did not view the film.

A copy of this production titled "The Sense of Nature" is available in the library of the Sir George Williams Campus.

This text covers the research, production  
and testing of a Super 8 film titled:

"The Sense of Nature"

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## I. INTRODUCTION

Our natural environment is being severely damaged by pollution and over-development of the land. People tolerate this, and as a token toward maintaining nature, have come to accept, for example, trees planted in the middle of concrete sidewalks, plastic flowers in imitation wood boxes, and limited green spaces slipped in between buildings so high and close together that the sun is all but obscured, and the human scale is non-existent. It is the author's belief that if people become aware of more varied ways to interact with the natural environment, and also form a more positive attitude towards it, then they might be less inclined to accept the misuse of that environment. Hopefully, architects, planners, politicians and all others closely involved in the development of cities, towns and the overall landscape, will as a result integrate the built environment more consistently with the natural environment. It is considered important that these attitudes towards the natural environment and an awareness of how to interact with it, begin to develop in early childhood, as this is the time that basic attitudes and concepts are most easily formed.

By providing an example of children exploring the natural environment using all their senses, it is hoped that other children, by viewing this example, will model this behaviour.

This modeling might in turn increase their awareness of some of the ways of exploring the natural environment using all their senses, and might also help to build a positive attitude towards exploring the natural environment.

## II. REVIEW OF RELATED RESEARCH

### Multi-Sensory Experiencing/Synaesthesia.

Andrews (1965) defines awareness not as an isolated sensory awareness, but as a multi-sensory interaction within each individual. The emphasis is placed on developing the individual's awareness through experiencing with all his senses, either simultaneously, or separately. This total organic approach to experiencing is known as 'Synaesthesia', or cross-sensory perception (Appelby 1974). Piaget claims that young children possess the ability to perceive the world emotionally, physically and cognitively in a simultaneous, multi-dimensional experience (Appleby 1974). Because of the lack of attention given to this ability in our education programs, by age 8, much of this capacity for multi-sensory experiencing is declining in all except a few individuals (Feldman 1971).

### Modeling.

Much of human learning occurs in a social context. Children learn by imitating what other children do, and by doing what other children tell them to do (Moursund, 1976). Imitating can range from simple motor behaviour to complex social and verbal interactions, as well as modifications of aggression, physical expression, affection and creativity (Moursund 1976).



The term modeling is a more appropriate term to use than imitation, because modeling influences have much broader psychological effects than simple mimicry as implied by the term imitation (Bandura, 1971).

Bandura (1971), et al, developed a theory of social learning based upon the principles of imitation and modeling. He presents the case for 'no-trial learning' or learning by observation. In social learning theory, the child watches a person (the model) perform some act, and if given the opportunity to do so, is more likely to behave in the same way or similar fashion. According to this theory, there are three modeling influences. The first is 'observational learning' - the acquiring of new responses which were not in the learner's repertoire. For example, an infant sees someone clap hands, and the infant claps as well. The second is the 'inhibitory or disinhibitory effect' - this is increasing or decreasing the reluctance of the learner to perform a response pattern not already socially sanctioned, or even tabooed in his behavioural repertoire. The third influence is the 'response-facilitation effect' - which is a response already in the observer's repertoire which is then performed as a result of the model's influence. Further to these modeling influences, Bandura has identified four major processes involved in modeling (Moursund 1976): 1) Attention-modeling does not occur unless the observer is attending to what the model is doing. Akamatsu and Thelen (1974) added the variable of

arousal to this process, by showing that up to a certain level the more alert and aroused one is, the more likely he is to model the behaviour of other people. 2) Retention - the observer must retain what the model does. Inherent in this process is rehearsal or practice. According to Bandura, even more important than overt rehearsal is covert or internal rehearsal of a model's behaviour. Coding is a second factor which contributes to the process of retention. As the child forms his own blueprint of what he sees, he also forms a code of his own and a way in which it is to be retained. From here on in, the learner tends to interpret subsequent behaviour in the context of the original code (Moursund, 1976). 3) Reproduction - after coding a model's behaviour, the observer must be able to reproduce that behaviour. This reproduction depends on two major factors, capability and acceptance. Capability refers to physical or intellectual performance and requires that the observer have some skills and capabilities to start with. Physical and intellectual capabilities do not insure that the observer will accept the model provided. Acceptance is based on a choice of what the observer thinks the new behaviour will bring him in the way of rewards and self-esteem. 4) Reinforcement - that which determines whether the observer will want to copy the model. Often, the apparent satisfaction that the model gets out of doing his activity is sufficient reward for imitation.

Originally, social learning came about through observation of real life models, but advances in communications have increased reliance upon pictorally presented models provided by television and other film displays (Bandura, 1971). Flanders (1968) demonstrated that both children and adults acquire attitudes, emotional responses and complex patterns of behaviour through pictorally presented models. A study by Elliott and Vasta (1971) showed that five to seven year olds who watched a film on children sharing candy, later shared more candy than did a control group who did not see the film.

In general, it has been shown that while live models work well, human subjects in films are about equally effective (Bandura, 1971). Bandura goes on to say, that when non-human models are used in films, the effects are diminished in direct relation to the extent to which the models deviate from reality.

#### Film.

The persistence of visual and mental images, using motion as a vehicle for maintaining interest and attention is what sets the motion picture far ahead of other audio-visual methods, e.g. slide tape. The motion picture, through movement and change attracts the viewer and holds his attention. By skilful use of sight and sound, identification and involvement of the viewer with the real-life situation on the screen can be achieved. This identification means that communication

has taken place (Dale 1969). Motion viewed can create emotion experienced in the viewer, mental in most cases, physical at times (Herman, 1965). What the motion picture is communicating is a heightened version of reality, because it is in fact, an edited version of reality. This editing, which is a manipulation of time, space and objects, can heighten reality by eliminating distractions and pointing up relationships that normally might be overlooked. Through the camera, a reality beyond the surface is captured, a reality that the ordinary observer does not usually see (Dale, 1969).

Research studies, as outlined by Hoban and Van Ormer. (Dale, 1969) have shown that films are understood, not merely remembered in a rote manner. Further to this, the studies demonstrate that people taught with films are better able to apply their learning than people who have had no film instruction. It is generally accepted that people learn from films and that films can be used for a variety of objectives, e. g., increasing factual knowledge, teaching skills, forming attitudes, and in some circumstances, changing motivations and opinions (Dale, 1969). The use of effective and appropriate films often results in more learning in less time, as well as stimulating other learning activities such as reading and direct interaction with the subject matter as portrayed in the film. In the context of a teaching-learning situation, film has the advantage of economy of time.

and a carefully staged setting specifically designed to further the lesson objective (Hoover & Hollingsworth, in Dale, 1969). In the class, it may be stopped for emphasis and discussion during a rerun. This is especially true when film is transferred to video-tape.

Two extensive research programs, conducted by Rice (1970) and by the Children's Television Workshop (CTW, Lesser, 1974) have shown that children like films; they particularly like funny films, slapstick, and films about other children and animals. Lesser also points out that children have a high degree of media literacy; i. e., comprehension of film (live action/animation), puppetry, music, games, etc., and this enables them to become closely involved in most media presentations. Short, straightforward presentation has been found to be the most effective approach for gaining and holding children's attention. The CTW (Lesser, 1974) has also found that children direct their attention to visual action, while ignoring whatever is not functionally related to that action. Further to this, if the content remains superimposed or peripheral to the visual action, it will be ignored.

Schillaci and Culkin (1970) have shown that the visual medium and film in particular, has both an immediate and long-lasting impact because it can emotionally interact with the viewer as well as being capable of stimulating the viewer's basic senses, e. g., seeing a juicy dripping orange conjures up the feel and taste of an orange.

### Production Techniques.

Film communicates by images and sounds organized around such elements as composition, rhythm, tempo, pace, lighting, colour, music and symbols (Lacey, 1972). The successful interaction of these elements must call upon both thought and feeling on the part of the filmmaker and viewer.

The following are the key production variables to be considered when producing a film (Dale, 1969/Herman, 1965/ Lacey, 1972/ Lipton, 1975/ Mikolas and Hoos, 1976/ Rynew, 1971).

#### OPENING.

The opening should be brief and organized around a single unit or concept relevant to the film. The intention is to catch the viewer's attention and hold it; this should be one minute or less for a ten-minute film, and no more than two minutes for a thirty-minute film.

#### COLOUR.

Because natural colour is a closer approximation to reality than black and white, it may enhance teaching potential. Colour films present a reality that is second only to life itself by producing the illusion of perspective and depth while increasing interest and attention as well as adding additional frames of reference. The type of film and time of day are important to the quality and homogeneity of the final version. Shooting outdoors should be limited to after nine in the morning, and before four in the afternoon, to

eliminate over-saturation of either the 'reds' (before nine) or blues (after four) in the film. The type of film should be kept constant so that the colour saturation and grain remain the same throughout.

### CAMERA SHOTS.

A shot is a series of frames exposed continuously. The main types of shots and their use in filmmaking are as follows:

Long Shot - establishing subjects and scenery

Full Shot - establishing important action

Close-up - directs attention

Extreme Close-up - detail/impact

Pan - follows sideways motion and can lead in or out of a scene

Tilt - follows up/down motion and can give feeling of ascending or descending

Zoom - zoom in focuses on detail and can end a shot or scene. Zoom out pulls away from the detail and can open a shot or scene

Angles - low angle shots from below object or subject give the viewer a feeling of being dominated by something powerful. High angle shots give a feeling of dominance and power to the viewer. A change in shot angle of the same object, scene or subject allows the scene, etc., to be held for a longer time without sacrificing attention or interest

Length - a shot that is too long can slow a film down and cause impatience in the viewer, and a consequent break in attention. A shot

that is too fast may retard meaning or understanding and cause frustration in the viewer, again possibly breaking the attention already established.

### Dissolve -

a gradual blending of two shots. This can be effective for smooth transition from scene to scene, especially if a time lapse is involved.

### Continuity and Flow -

Continuity is the vital cinematic quality that allows a film the smooth flow of motion and movement as the images pass on the screen without unwanted violent movement; thus shot, scene and sequence interlock to form the whole. This can be achieved by carefully using the dissolves, fade-ins, fade-outs, montage, superimpositions as well as verbal and musical transitions. The original continuity must be built into the script and the calling of camera shots, but ultimately it is the editing which must form the final continuity of the film.

### Sound -

Children do not consider narration to be the prime objective of an accompanying sound track. Movement, impact and rhythm are more influential in their discrimination (Rynew, 1971). Sound, usually through music, or special effects, is used for emphasis, mood and transition (Dale, 1969). This is supported by Lacey (1972) who says that sound is intimately related to feelings and concepts, so much so that experiments using different soundtracks with the same film, have created completely different film experiences.

### Music -

For the opening, music should help set the mood and establish the rhythm. In the main body, it must flow with the images and peak or descend according to the filmic transitions. The musical ending should help the visual image make a definite co-ordinated ending statement.

### Dialogue -

The dialogue is used in a supportive role, and care should be taken that the visual image is not encumbered by too much or too dramatic a dialogue.

### Narrator

Must pace the delivery and use proper nuance, emphasis, timing and rhythm so that the dialogue flows with the images and supports the visual without overpowering it.



### Super 8 Film and Video

The Super 8 format affords the filmmaker many of the advantages of 16mm film without its cost and complications. Fade-ins and fade-outs, lap dissolves, superimpositions and single frame shooting for animation and pixilation are all possible in the camera, thus eliminating costly and time-consuming special effects production in the lab. Sound striping and lip synch. also allow for effective incorporation of the audio portion so necessary in many productions. The diversity and portability of Super 8 filmmaking gives it an advantage over video-recording, in that it requires far less equipment and of a less complex nature as well as fewer personnel in order to arrive at a professional level of production.

Quality copies of the original Super 8 film have in the past been a costly operation as an internegative process was necessary to achieve good colour rendition, but new film and processing technology, which is now becoming available to all filmmakers, allows for finer grained originals which can be transferred with excellent colour rendition to video tape for editing and distribution. Video tape copying is simple and quick, and as many schools have video playback units, distribution will be simplified. Because of these factors, the Super 8 process is a flexible and easily accessible visual communication media which allows the filmmaker to produce quality films.

### III. OBJECTIVES

#### Production.

To produce a Super 8 sound film about children exploring the natural environment using all their senses; with a budget of \$300.00, within six months; using the video equipment and facilities of Concordia University.

#### Modeling.

To use this film as a behaviour model for children to follow, so that:

- 1) they become aware of some of the ways of exploring the natural environment using all their senses;
- 2) they form positive attitudes towards exploring the natural environment using all their senses.

#### Hypothesis I.

Children between the ages of eight and ten years who view a film on exploring the natural environment using all their senses, will become more aware of this type of exploring than children of the same age, who do not view the film.

#### Hypothesis II.

Children between the ages of eight and ten years who view a film on exploring the natural environment using all of their senses will have a more positive attitude towards exploring the natural environment than children of the same age who do not view the film.

### Operational Definitions.

'Awareness' is defined as the knowledge of sensory interactions with the natural environment insofar as this is measured by the cognitive test given (see Appendix III - Type I Questions).

'Attitude' is defined as, what was measured by the attitude test given (see Appendix III - Type II Questions).

### Target Audience.

As stated in the introduction (page 3), by age 8, there is evidence to indicate that the child's capacity for synaesthetic experiencing is declining. This production was aimed at eight to ten-year-old children, as it was the contention of the author that if this age range of children could be encouraged to continue to develop their synaesthetic abilities, then it might continue to be an integral part of their lives.

#### IV. THE PRODUCTION.

The production decisions were based on three major factors:

- 1) The goal of portraying multi-sensory experiencing;
- 2) The goal of inducing modeling;
- 3) Theoretical and practical knowledge of production techniques.

##### Multi-Sensory Experiencing.

A catalogue was developed listing sensory interactions that children could have with the natural environment (Appendix I). From this catalogue the situations that would best communicate the use of all the senses were selected. These situations were then further developed in a preliminary script using the criteria set up for modeling and production variables.

##### Modeling.

Bandura's four major processes involved in modeling were used to help determine the basic production parameters. (See Related Research).

##### Attention/Arousal.

Opening - A dynamic opening was used to catch the children's attention and hold it. This was done through lively music, drawings done by other children and a quick visual pace.

Colour - Vivid colour was used throughout in order to focus attention on the reality of the subjects, e. g. flowers, grass, etc.

Images - The action was changed often, so that by interspersing the fast and slow-paced sequences, no one sequence remained too long and thus attention could be maintained.

Music - Changes in pace and tempo were arranged according to the images. This helped maintain attention and at times arouse the viewer to higher levels of attention.

Dialogue - The dialogue was kept short, expressive and lively. It accentuated the key points early in the film so that the viewer's attention was brought directly in focus with the sensory interactions that would follow throughout the film.

#### Retention

Rehearsal - As defined by Bandura, covert or internal rehearsal is valid and important in modeling of behaviour. By repeating the same type of sensory interaction activities, e. g., running, jumping, tasting, etc., the viewer was encouraged to replay them in his own mind. It is important that this repetition be similar in context but that the images be sufficiently different so that the viewer does not feel he has viewed the identical scene before. If the same scenes were repeated, loss of attention might occur.

Coding - In order for the viewer to code or form his own personal blueprint of what he sees, it is important that he be given alternatives for the same type of experiences so that he may identify with the action that best suits him. This entailed presenting the same sensory interactions in different

ways, e. g. splashing in a lake, sitting under a waterfall, or running water over legs and feet.

### Reproduction.

**Capability** - It is important that actions performed by the models in the film be geared for the age and physical capacities of the viewer. The actions and interactions were made to fit into the viewer's comprehension and physical attainment levels.

**Acceptance** - The age of the model is key to having their actions accepted by the viewer. The majority of the participants in the film were close to the viewer's ages because peer group influence greatly affects acceptance. Where younger or older children better illustrated a particular interaction, the peer group model or models are shown performing together with the younger or older children. In this way, the viewer is more inclined to accept these actions because the models have done so.

### Reinforcement.

Reinforcement through modeling may occur if the model appears to be enjoying himself, e. g. happy, exuberant, etc. This apparent enjoyment may be sufficient stimulus for the viewer to want to model this behaviour, so that he too may gain the same reinforcement. This concept was used throughout the film as a key factor for stimulating positive reactions within the viewer.

Production Techniques.

Using the Catalogue of Sensory Interactions (Appendix I), the major sectors were identified, e. g., opening, body parts, etc. From this, an initial outline was developed, and the participants, shooting locations, and filming schedule were determined. In addition to the planned shooting, any other situation relative to the film that presented itself was also filmed, e. g., children on the beach, animals in the park, etc.

A wide open approach was used during the actual filming so that many different combinations of interactions, participants and locations could be filmed. Without a tight script, the participants were more spontaneous and loose in their actions. This approach also meant that a large amount of material could be filmed and then a selection could be made so that the material which best suited the criteria for successful modeling could be used. This approach also necessitated a shooting ratio of 10:1 (film shot to final edited film). A total of two thousand feet of film was shot and transferred to video tape for viewing and rough editing. From this video tape, the different sections, e. g. opening, flowers, eating, etc., were assembled in order to gain an overall view of where the film was headed. The assembled video tape was then used as a guide for the first rough film edit. This film edit was put on video tape for viewing, and the final script was begun (Appendix II).

### Opening/Introduction.

In the 'Opening' (section 1), paintings of the natural environment done by children, were used to set the scene. As most children who are to view the film have themselves drawn or painted trees, flowers, animals, etc., they can relate to and quickly identify with the film. The quick pace of image flow, the lively music and length of opening (55 sec.) was intended to catch the viewer's attention and hold it. Because the opening was completely different from the upcoming section (Body Parts and Interactions), a very definite but short audio and visual break was used between the two sections.

'The Body' (Section 2) started with eyes and worked its way down to toes using isolated close-ups to call attention to the various parts of the body that would be focused upon later in the film. The quick pace of image flow and lively almost humorous music was used to maintain the viewer's attention and focus it on something as common as the parts of his/her body. The isolated close-ups provided a concentrated view that most people don't observe in real life. These close-ups also at times added a humorous touch, e. g. tongue touching the end of a nose, extreme close-up of wiggling big toe, etc.

The 'Introduction/Title' (Section 2<sup>A</sup>) was made to flow directly out of 'Body Parts' by moving from the singular parts of the body to the whole body. At this point the dialogue (Appendix II, 13-14) introduced the theme of sensory interaction with nature. The images then shift to isolated



interactions, e. g. fingers in orange, nose in flower, and finally pull back to the whole body, e. g., hugging/kissing, rolling in the grass, etc. The last part of this section recounts the basic senses and ends with the title - 'The Sense of Nature'. The title was held on the screen for several seconds in order to emphasize it and to allow the verbal message to sink in.

#### Main Body.

From this point on, the main body of the film (sections 3-8) dealt with the different aspects of the natural environment. The objective was to relate the parts of the body and sensory interactions, to activities that children could experience themselves. The ordering of the sections and the sequencing of the shots was based mainly on maintaining the continuity of the message and image flow. The two key techniques in making the sections flow together were cuts and dissolves. The cuts were critical as they had to link similar subject matter without an abrupt ending or beginning. The dissolves by their very nature allowed a smooth visual transition, but care had to be taken in selecting the content so that the beginning of one section related to the end of the preceding one. One single piece of synthesized electronic music was used throughout the main body. By editing and repeating sections of this one piece of diverse music, it was possible to fit it to the various parts within each section

of film. This also helped create the unifying sound track which was most important for the overall flow of the film.

### Ending.

The 'Ending' (section 9) was aimed at bringing about a final emotion of freedom and joy in the viewer. Slow motion was used to heighten the viewer's feeling of running and tumbling in the field. The intercuts between the child bouncing up and down and the seagull soaring, emphasized the joy and freedom of being in contact with nature. The music also builds to a climax and ends in concert with the last image.

### Colour.

Colour film was used because of the need for realistic reproduction, as well as for distinguishing all the subtle elements in the natural environment, e.g., flower petals, raindrops on a leaf, or the juiciness of watermelon.

Ektachrome 40 was selected because of its good colour rendition and fast processing (two days in town vs. ten days out-of-town for Kodachrome 40). The only drawback to Ektachrome was its larger grain size, but early testing proved it to be very acceptable for transfer to video tape.

### Camera Shots.

A variety of camera shots and angles were used throughout the film (see Related Research), so that overall diversity

and emphasis in particular scenes and sequences could be achieved. The close-up and extreme close-up dominated many parts of the film, making it possible to focus the viewer's attention and involve him/her in the subject, e. g., fingers digging deep into an orange, water dripping down the face. The dissolve was used sparingly but was very useful for maintaining continuity and flow between sections, as well as within the sections when emphasis of static subject matter was necessary.

#### Editing.

The editing of this film was done both on video tape and with the original film itself. No working prints were made because of the high cost factor. The initial rough editing and assembly was done using the entire two thousand feet of film transferred to one inch video tape. A three-quarter inch cassette copy was made from the one-inch tape so that the edited version could be reviewed at length, and a synthesized script written from it. Using this script, the film was cut and spliced producing a version that would be close to the final version of the film. Tape splices were used throughout because they work best in the VP-1 transfer machine. The film was then transferred to a three-quarter video cassette for final reviewing. This review served to weed out and modify shots and sequences and in general tighten up the film so that a final editing script could be written. The video-tapes allowed continuous viewing of the film footage in all

stages of editing without damage to the original film itself, and also facilitated high speed access to any section of the film. The final film editing was done according to the last tightened up script. This final edit was critical in that the flow and continuity of the film was dependent upon the way the shots and sequences were put together. Several final changes were later made in conjunction with the sound track so that the visual image in combination with the sound track became the whole film.

#### Sound Track

Work on the sound track began before the final film editing was done. Because the music part of the sound track was made from existing music, it was necessary to begin matching the visual image and music before final editing. The sound track greatly influences the pace and rhythm of a film and therefore by working the music into the roughly edited film, it was possible to rearrange some of the sequences to coordinate sound to image and image to sound. The final film and music editing was a constant juggling back and forth, until image and sound became a harmonious whole.

The dialogue was written expressly for this film. It was written according to the final edited version of the film in order to reinforce and emphasize the visual image as well as precisely match the pace and rhythm of the film. The words

emphasized sensuality and were kept simple in order to correspond to the comprehension level of the intended viewer.

Narrating the dialogue was extremely important in that it could not overpower the visual image nor underplay the sensuality of the action. The narrator had to be able to:

- 1) express sensuality in his/her voice;
- 2) control volume, pitch and intonation;
- 3) project to the viewer (children), a feeling of wonderment and joy.

Several persons, both male and female were auditioned. Based on the above-outlined criteria, a female narrator was selected. The narrator rehearsed the dialogue using a video tape version of the final film for visual cues.

The final sound track was recorded in a professional sound studio using precision equipment. This facilitated quality reproduction and editing of the prerecorded music and narration. The music was recorded and edited on a tape separate from the narration and then the two were mixed in sync using a video tape version of the final film as a visual cue. The separate recording of narration and music is necessary for two reasons: one is that the narration segment requires many takes before it is accepted; and two, precision cueing of narration and music is extremely difficult during actual recording.

Audio Visual Mix

The final step of the production was the simultaneous recording of film and sound track on to video tape. It is important to note that there must be a visual cue at the beginning of the film and an audible cue at the beginning of the audio-tape so that the two may start running at precisely the same time.

Half-inch colour reel-to-reel and three-quarter-inch colour cassette video tapes were recorded simultaneously using the following equipment:

- 1) Kodak VP-1 videoplayer;
- 2) Akai variable speed reel-to-reel audio-tape deck;
- 3) Sony half-inch colour video tape deck;
- 4) Sony three-quarter colour cassette video tape deck;
- 5) 14" colour monitor.

Several dry runs were made in order to synchronize the sound to the film. By using a variable speed audio-tape deck, it was possible to compensate for the slight difference in speed at which the equipment runs when used in two different places; in this case the recording studio and the video control room. When the speeds were regulated the transfer/mix was made, producing the final version of super 8 film and sound on video tape.

It is also possible to have the super 8 film copied onto a magnetically striped super 8 copy film and then add the sound track to it. This would be beneficial if colour video tape production equipment is not available, or when playback equipment is not available where the film is to be shown.

If this were the case only a super 8 sound projector and a screen would be required.

## V. EVALUATION PROCEDURES

### Sample.

The sample was drawn from Westminster elementary school in Montreal, Quebec, and consisted of children at two age levels, eight and ten years, with similar socio-economic backgrounds. Each age level was considered separately in order to control for differing levels of communication skills, e. g., writing, verbalization, etc.

Forty children with a mean age of 8-1/2 years (20 males and 20 females) and forty children with a mean age of 9-1/2 years (20 males and 20 females) were randomly selected and placed in either treatment or control groups consisting of twenty children each (10 males and 10 females). A total of four groups comprised the sample.

### Design.

A factorial design (fig. 5.1) was used; specifically a posttest-only control group design for age level, sex, and type of question.



		A <sup>1</sup>		A <sup>2</sup>	
		Q <sup>1</sup>	Q <sup>2</sup>	Q <sup>1</sup>	Q <sup>2</sup>
C <sup>1</sup>	B <sup>1</sup>	RG <sup>1</sup>	RG <sup>1</sup>	RG <sup>3</sup>	RG <sup>3</sup>
	B <sup>2</sup>	RG <sup>2</sup>	RG <sup>2</sup>	RG <sup>4</sup>	RG <sup>4</sup>
C <sup>2</sup>	B <sup>1</sup>	RG <sup>5</sup>	RG <sup>5</sup>	RG <sup>7</sup>	RG <sup>7</sup>
	B <sup>2</sup>	RG <sup>6</sup>	RG <sup>6</sup>	RG <sup>8</sup>	RG <sup>8</sup>

A<sup>1</sup> CONTROL GROUPSA<sup>2</sup> EXPERIMENTAL GROUPSB<sup>1</sup> MALESB<sup>2</sup> FEMALES

RG RANDOMLY SELECTED GROUPS

C<sup>1</sup> AGE 8-9 YRSC<sup>2</sup> AGE 9-10 YRSQ<sup>1</sup> TYPE I QUESTIONSQ<sup>2</sup> TYPE II QUESTIONSREPEATED MEASURES ON TYPE OF QUESTION (Q<sup>1</sup>/Q<sup>2</sup>)FIGURE 5.1 EXPERIMENTAL DESIGN

### Variables.

1. Independent variables ( $A_2$  vs.  $A_1$ ) - children who view the film vs. children who do not view the film.
2. Dependent variables ( $Q_1$ ) - degree of awareness as measured by cognitive test questions  
( $Q_2$ ) - attitude, as measured by attitude test questions.
3. Moderator variables ( $B_1$  vs  $B_2$ ) - sex; male vs. female  
( $C_1$  vs  $C_2$ ) - age; 8-9 years  
vs. 9-10 years.

### Pilot Test.

In order to verify the testing method and the questionnaire's comprehensibility, the film was shown to a group of twenty children of the youngest age level in their own classroom, using a video cassette playback unit and 20" colour monitor. This method proved to be unsatisfactory as the children had a difficult time settling down and comments or humorous scenes set off chain reactions within the group. Because of this, many of the children found it difficult to hear or pay attention to the film and some had their view of the monitor blocked. This same group was given the written questionnaire and no problems were found in comprehension, method of answering or discipline. Therefore the questionnaire was retained in its

entirety for the final testing. To correct the problems in the viewing method, a second pilot test was run. This time a group of ten children were shown the film in a small quiet room where each one had an unobstructed view of the monitor. The general atmosphere and size of the group gave a better viewing situation than did the original grouping of twenty; therefore this method was adopted for the final testing.

#### Final Testing.

For each age level two classes were combined and a random selection of twenty children for the experimental group and twenty children for the control group was made. This method allowed for a cross-section of children to be present in each specific experimental and control group. The control groups were given the written questionnaire while the experimental groups were shown the film, using the method described in the second pilot test, and then given the written questionnaire. Because the experimental groups were split into two groups of ten and the control groups were not, the control groups were kept isolated until all the testing was completed.

In addition to the questionnaire, the experimental groups were asked to write their comments on the film. This was intended as a direct feedback to the author for evaluating interest and overall reaction of the children for use in developing future

films in this area. (Some of these commentaries are discussed in Section VI "DISCUSSION and CONCLUSIONS").

All testing was done by a person other than the author; the author was present as an observer only.

#### Questionnaire.

The questionnaire (Appendix III) consisted of two types of questions in order to test the two hypotheses:

Type I questions related directly to the film and showed whether the viewer vs. the non-viewer had an awareness of the different ways of exploring the natural environment, using all the senses. The eight Type I questions each contained four possible answers. The answer considered correct was directly related to the material in the film and tested whether or not the viewer had knowledge of ways of exploring the natural environment, using different senses as shown by specific sequences in the film. Two of the answers provided were factual, but did not deal with experiencing. The fourth answer was a nonsense answer which was used to help discourage or at least detect random guessing.

Type II questions asked how the subjects would react if they encountered a particular situation. The nine Type II questions each contained three possible answers. The questions tested the viewer's attitude towards exploring the natural environment

if he/she would be in the particular situation outlined. The answer which was considered correct for this type of question dealt with the viewer stating a willingness to explore the natural environment using all his senses. A second type of answer provided dealt with experiencing (e. g. swimming) but in an environment or situation other than the natural environment. The third option was either irrelevant or nonsense in order to eliminate a fifty-fifty guessing situation.

The two types of questions were mixed into one questionnaire so that only one set of questions had to be administered. The position of the correct answers were selected so that no specific pattern was apparent.

The Kuder-Richardson KR-21 test was run on the test data in order to estimate the reliability of the questionnaire. A coefficient of 0.84 was calculated for the Type I questions and 0.86 for the Type II questions. These coefficients showed that both types of questions provided appreciable statistical reliability.

## VI. RESULTS

### Frequency Distributions.

Frequency polygons (fig. 6.1 - 6.4) were drawn up using the raw scores (see Appendix IV) in order to show the frequency distribution of the scores.

These graphs showed the ranges for the experimental groups to be higher than those of the control groups. It is clear that overall, the experimental group scores were considerably higher than the control group scores.

### Data Analysis.

The  $2 \times 2 \times 2 \times 2$  factorial design was used to analyse the four independent variables of the experiment: control/experimental, sex, age, type of question. The design (fig. 5.1) was used as the cell diagram to run a 4-way analysis of variance using the means for each group (tables 6.1 - 6.2). The "Statpak" computer program for Analysis of Variance N-Ways was used to determine the effect of each factor on the dependent variable, as well as any significant interactions between the factors. The F-values (table 6.3) revealed a highly significant difference for factor A (control vs. experimental  $p < .01$ ), but they were not significant for any other main effect or interaction between factors.

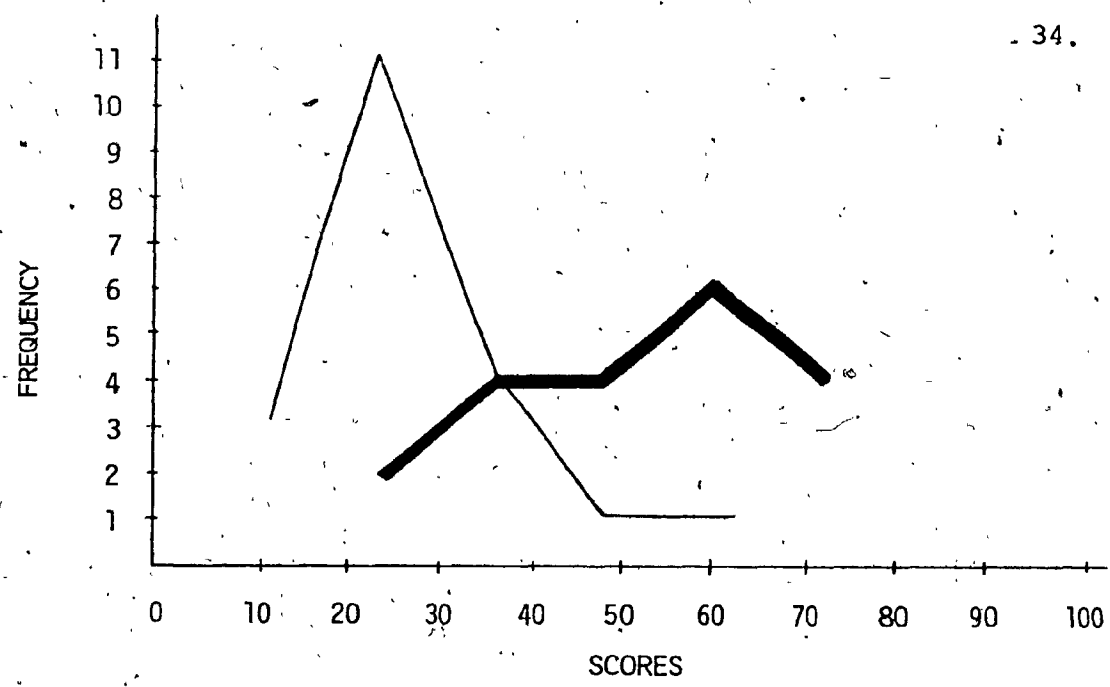


FIGURE 6.1 FREQUENCY POLYGON AGE 8-9 YRS TYPE I QUESTIONS

— CONTROL      — EXPERIMENTAL

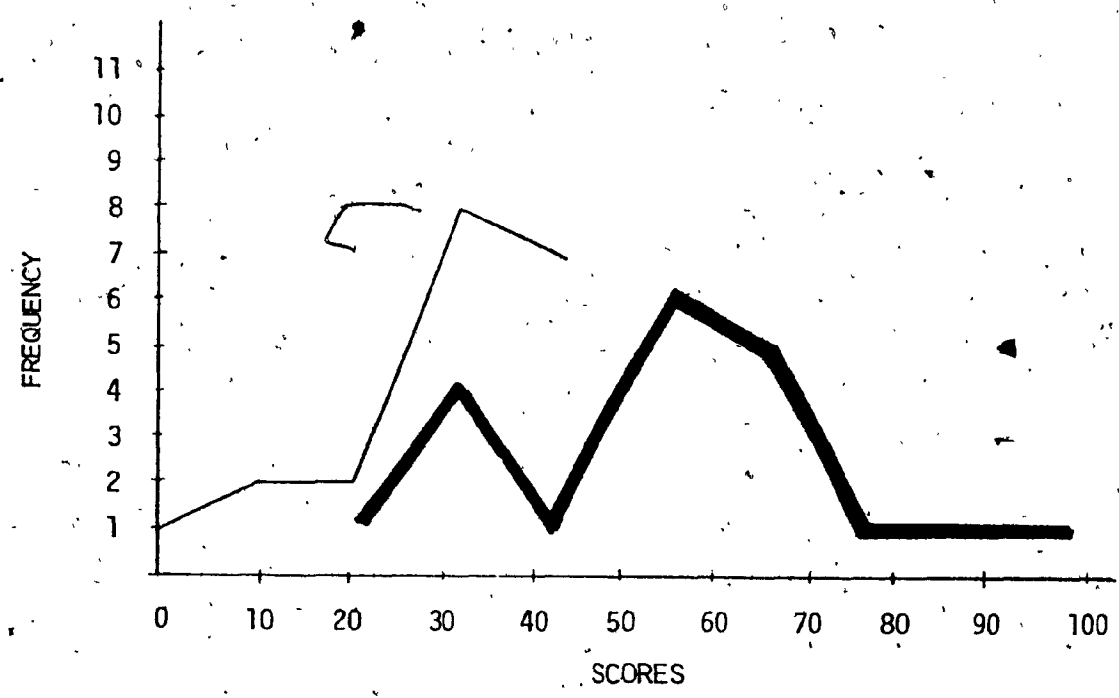


FIGURE 6.2 FREQUENCY POLYGON AGE 8-9 YRS TYPE II QUESTIONS

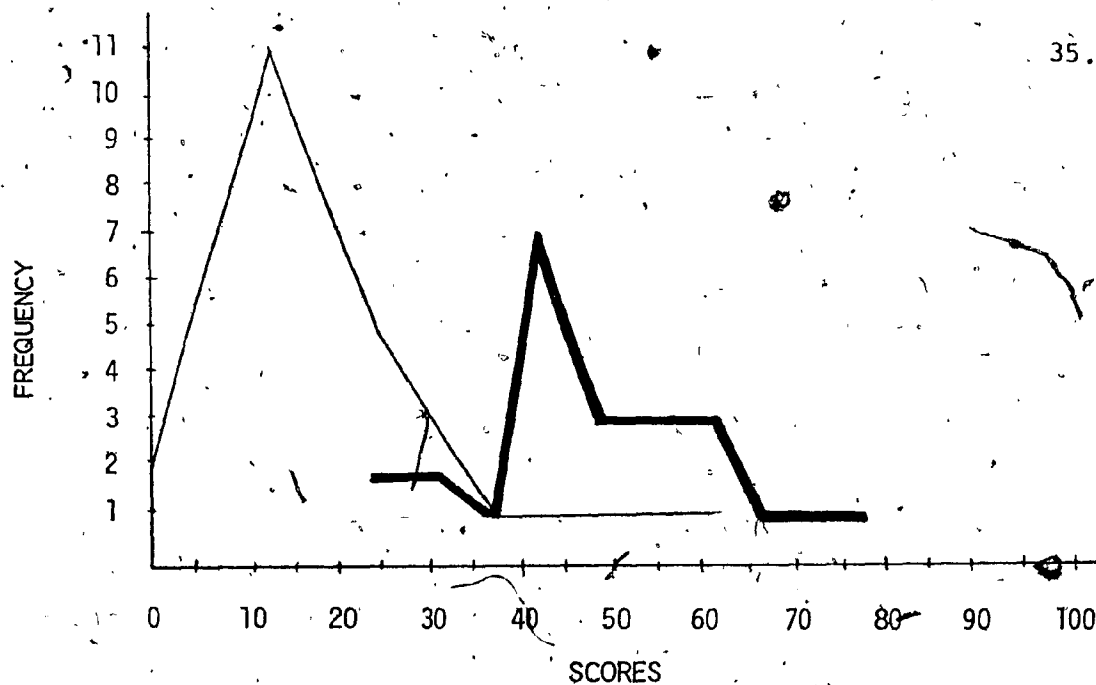


FIGURE 6.3 FREQUENCY POLYGON AGE 9-10 TYPE I QUESTIONS

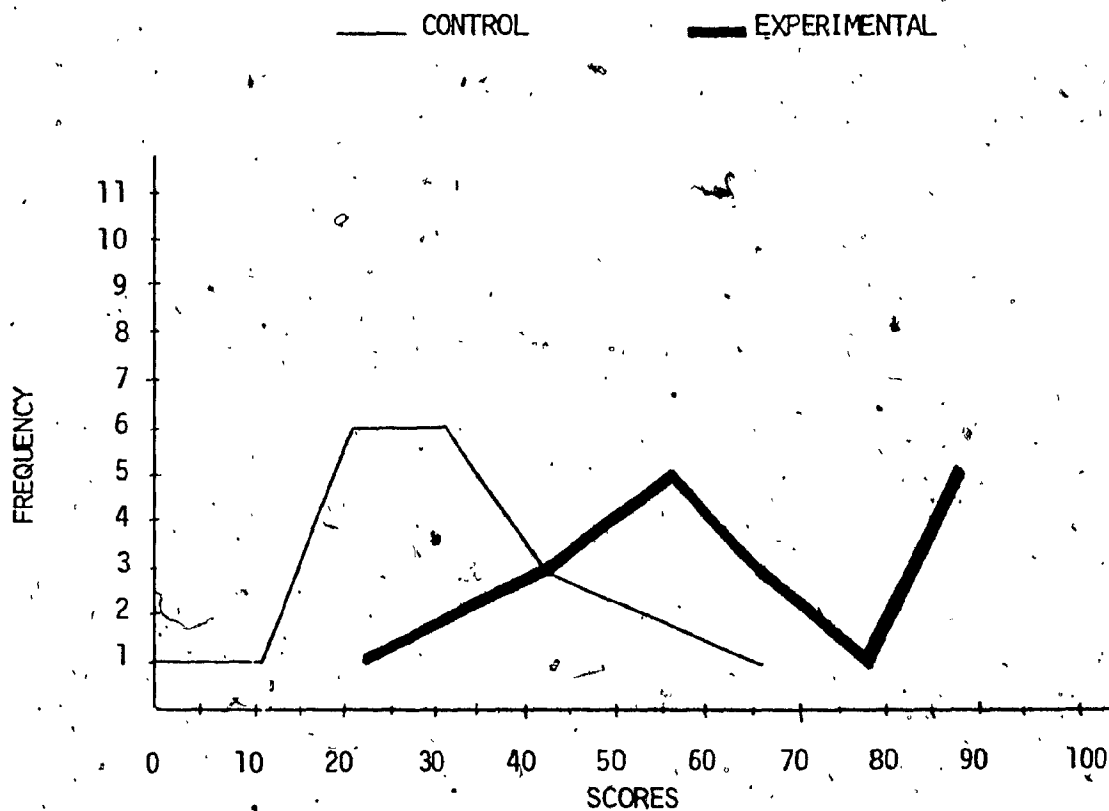


FIGURE 6.4 FREQUENCY POLYGON AGE 9-10 YRS TYPE II QUESTIONS



A <sup>1</sup>				A <sup>2</sup>			
B <sup>1</sup>		B <sup>2</sup>		B <sup>1</sup>		B <sup>2</sup>	
Q <sup>1</sup>	Q <sup>2</sup>	Q <sup>1</sup>	Q <sup>2</sup>	Q <sup>1</sup>	Q <sup>2</sup>	Q <sup>1</sup>	Q <sup>2</sup>
29.0	31.9	28.0	31.9	51.5	60.2	56.5	53.4

A<sup>1</sup> CONTROL GROUPSA<sup>2</sup> EXPERIMENTAL GROUPSB<sup>1</sup> MALESB<sup>2</sup> FEMALESQ<sup>1</sup> TYPE I QUESTIONSQ<sup>2</sup> TYPE II QUESTIONSTABLE 6.1 MEAN SCORES AGES 8-9 YRS. (C1)

A1				A2			
B1		B2		B1		B2	
Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2
12.8	30.9	24.1	34.3	51.5	58.9	44.1	63.5

A1 CONTROL GROUPS

Q1 TYPE I QUESTIONS

A2 EXPERIMENTAL GROUPS

Q2 TYPE II QUESTIONS

B1 MALES

B2 FEMALES

TABLE 6.2. MEAN SCORES AGES 9-10 YRS (C2)

SOURCE OF VARIATION	DEGREES OF FREEDOM	MEAN SQUARES	F-VALUE
A	1	2910.603	12.475
B	1	6.250	.027
AB	1	23.040	.099
C	1	33.640	.144
AC	1	16.000	.069
BC	1	11.903	.051
ABC	1	15.603	.067
Q	1	277.223	1.188
AQ	1	.203	.001
BQ	1	3.610	.015
ABQ	1	4.000	.017
CQ	1	118.810	.509
ACQ	1	.090	.000
BCQ	1	15.603	.067
ABCQ	1	63.203	.271
WITHIN GROUPS	15	233.319	---

LEVELS FOR SIGNIFICANCE  $P < .05 = 4.54$   
 $P < .01 = 8.68$

TABLE 6.3 ANALYSIS OF VARIANCE

Using the above data, a Scheffé Multiple Comparison Test was run to determine the significant difference between the "A" factor means. Because there was no significant difference between factors A, B, C and Q, factors B and C were ignored.

#### Hypothesis I.

The means of the experimental groups were consistently greater than the means of the control groups (tables 6.1 - 6.2). The analysis of variance showed the means to be significantly different for the treatment factor  $A_1/A_2$ ,  $P < .01$  ( $F=12.48/df_{1,15}$ ).

The Scheffé Multiple Comparison Test (table 6.4) showed a significant difference between means for the "A" factor ( $F > F' p < .01$ ); therefore the null hypothesis was rejected.

From this it can be concluded that the children who viewed the film showed a greater awareness of multi-sensory exploration of the natural environment using all the senses, than children who did not view the film.

#### Hypothesis II.

The means of the experimental groups were consistently greater than the means of the control groups (tables 6.1 - 6.2). The analysis of variance showed the means to be significantly different for the treatment factor  $A_1/A_2$ ,  $P < .01$  ( $F=12.48/df_{1,15}$ ).

The Scheffé Multiple Comparison Test (table 6.4), showed a significant difference between means, for the "A" factor ( $F > F' P < .01$ ): therefore the null hypothesis was rejected.

From this it can be concluded that the children who viewed the film showed a more positive attitude towards exploring the natural environment using all the senses, than did the children who did not view the film.

FACTORS	QUESTION	F	F P .05	F P .01
A1 vs A2	TYPE I	63.38	31.78	60.76
A1 vs A2	TYPE II	61.37	31.78	60.76

A1 CONTROL GROUPS

A2 EXPERIMENTAL GROUPS

TABLE 6.4 SCHEFFE MULTIPLE COMPARISON TEST

## VII. DISCUSSION/CONCLUSIONS

### Impact of the Video-Viewing

The results of this study provide evidence that exposure to a film which shows children interacting with the natural environment, can promote awareness of ways of exploring that environment, and can reinforce a positive 'attitude' towards exploring the natural environment using all the senses. The experimental groups showed a significantly greater 'awareness' and a significantly more positive 'attitude' in relation to the control groups. The test results and analysis also made clear that no significant difference existed when comparing males to females, age (8-9/9-10) or awareness vs. attitude.

The results of the Type II questions determining 'attitude', indicate that to some extent, the children in the experimental groups state that they would model their behaviour upon the actions of the characters shown in the film. This is further supported by the results of the control groups, who were not exposed to the film, and did not show as great a tendency to state a desire to interact with the natural environment. From this, it is possible to say that the moving image, and in particular, a film based video tape may be an important modeling medium for developing positive attitudes in young children towards the natural environment.

Similarly, the results of the Type I questions showed that the experimental groups displayed a greater awareness of how to interact with the natural environment than did the control groups. Once again, this supports the validity of using film as an agent for the modeling process in children.

Additional information as to the overall effect of the film was collected first by observing the children as they watched the film, and second through the comments which each of the children wrote after viewing the film. (These included the comments of the control groups who were also shown the film after they had finished their questionnaire). By observing the children, while they were viewing the film, it was found that they watched more attentively when the action was fast paced and very active (e. g. climbing trees, splashing in the water), and also when the children in the film were closer to their own age (from six years and up), as opposed to the scenes with younger children. Both of these observations were confirmed by the free-form written comments recorded, which referred to: the passive scenery segments, e. g. flowers in the fields, mountains, etc., as sometimes being dull or boring; and scenes with the very young children at times being "babyish", e. g. playing in the sand. Other comments ranged from "silly" to "beautiful" and "fun"; but the majority of children expressed interest in the film, and a desire to see more of this type of film.



### Alternative Evaluation Techniques.

While these results showed that the film had an immediate influence on the experimental groups, the actual synaesthetic-dispositional effects of such a film can only be revealed when the subjects are themselves subsequently exposed to the natural environment. It is also possible that other testing methods could be developed to further verify the impact of the film on children in this and other age ranges. One method would be a pretest-posttest experiment to check whether the viewer had gained additional knowledge in relation to his prefilm knowledge, and also whether a change in 'attitude' had taken place. Retention over a longer period of time could also be tested by a pretest, delayed posttest, using varying periods of time delay. Another approach to testing the modeling impact of the film would be to take the subjects out into the natural environment and record their actions on film or video tape before and after viewing the film. Using these films or video tapes, independent raters could determine any significant differences in the way the subjects interact with the natural environment. This method is probably the most extensive way of looking at the modeling effects of the film, but it is also a very costly procedure both in time and money. For this reason, it was not possible, within the constraints of this thesis equivalent to undertake this method of verification. It is hoped that for future films, it will be possible to push the verification to its limits.

Another area which is recommended for further study is the selection of subject groups from different socio-economic backgrounds. The groups used in this study came from affluent middle-class backgrounds. It is possible that children from less affluent backgrounds might have different pre-viewing knowledge because they often do less travelling, camping, hiking, etc. than do those children who come from a more affluent background. Again, all of the test methods discussed previously would apply to the different groups.

#### Additional Feedback.

When the film was shown to twenty-five parents of young children and to fifteen elementary school teachers, almost all found the film personally stimulating, but most important, they all expressed the belief that sensory interaction with the natural environment was an important aspect of human experiencing, and that it should be actively encouraged in young children. This positive reaction to the film by teachers and parents leads the author to believe that, in addition to showing the film to children, if it were shown to teachers in training, teachers and curriculum planners in schools, and to parents, it could indicate to them new ways to help children develop their sensory abilities.

If the film is to have its full modeling impact, children should be provided with activities related to the interactions and experiences illustrated in the film. It is recommended

that a program including such things as field trips, discussions and possibly viewing of other films dealing with the natural environment be developed to aid parents and teachers. Without this follow-up program, the film's impact may be short-lived, as the majority of our children are exposed to a very unsynaesthetic daily life.

The test data and analysis tend to support the validity of using film in regard to stimulating an awareness of exploring the natural environment using all the senses; as well as supporting the goal of developing a positive attitude toward this type of exploration. Since the results suggest that the film produced was effective, it is possible that other films dealing with multi-sensory exploration of the natural environment and also possibly the built environment as well, would be worthwhile undertakings.

#### Production Techniques.

The choice of Super 8 film transferred to video tape for production and testing, proved to be valid from both a cost and production point of view. The wide open shooting approach was only feasible in Super 8, as 16 mm would have been far too expensive, and video, technically impossible. Good three-quarter inch video tape editing equipment is presently available and would now make it possible to eliminate the costly studio time and equipment used in the initial editing of this production.

Drawing from the experience of producing this film, several particular areas should be approached differently in any subsequent film. Three aspects which warrant attention are action, age of the participants and length of scene. The majority of the action should be fast paced in the action itself, or at least the pace at which it is presented, e. g., moving quickly from scene to scene. The age of the subjects should be kept close to the ages of the viewing subjects, or at least within a three-year spread either way. The length of scene should be kept short, especially when it is slow action or passive scenery.

### Conclusions.

The super 8 film-based videotape produced and evaluated for this thesis equivalent had a significant effect on the intended audience. The experimental groups showed a greater 'awareness' and a more positive 'attitude' in relation to the control groups, towards exploring the natural environment using all the senses.

The production decisions which were based on Multi-Sensory Experiencing, Modeling and Production Techniques resulted in an effective film. These parameters can serve as the basis for future films on exploring the natural environment, while taking into consideration the modifications covered in 'Production Techniques' (Discussion).

This study seems to indicate that much research and development is needed to promote 'Multi-Sensory' experiencing.

This future work could be in two forms:

- 1) the production and distribution of films to promote and stimulate an awareness as to the possibilities of Multi-Sensory experiencing (these films should be aimed at both children and adults);
- 2) activity programs which are used as follow-ups to the films as well as serving as an ongoing part of the general curriculum.

A key factor in both of the above areas of research is the further development of evaluation techniques (see DISCUSSION & Additional Evaluation Techniques). There are two types of evaluation techniques required; one is for the film-producer or program planner, and the second for the teacher/parent. The first type allows the person who is developing a film or activity program to evaluate the effectiveness of the production or program based on design decisions. From this, modifications and changes can be made in order to reach the educational goals set up for that particular production or program. The evaluation techniques for the teacher/parent would help that person determine whether the child has reached the specified goals of the film or activity program and whether to go on to further activities or to review.

In general the author found that children are interested in exploring the natural environment and that film is an effective medium for communicating Multi-Sensory exploration of that environment.

\*\*\*\*\*

Author's Comments: It is my feeling that we must help ourselves and our children develop a sensitivity towards nature and a better understanding of the natural environment. With this understanding, we can build more humane environments for ourselves; environments which will be compatible with nature.

Synaesthesia, Multi-Sensory experiencing may be a key factor in understanding our natural environment. It is hoped that by providing children with examples of other children interacting with the natural environment, they may model their behaviour after them, and with time will form a strong bond with nature. This bond will hopefully help future generations to understand, better than we do today, how to use and control technology so that the natural environment is maintained and can be enjoyed by all.

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APPENDIX I

CATALOGUE OF SENSORY INTERACTIONS  
AND THE NATURAL ENVIRONMENT

## TOUCH/FEEL

### Hands/Fingers

1. Playing with - mud

/digging - earth #17

- sand #5, 22, 24, 31

-- clay

- rocks/water #21, 31

2. Stroking - leaves

- flower petals

- animals - fur #16

- hide

- feathers

- face

3. Digging into fruit

#4, 6, 23

4. Holding hands

- #24<sup>A</sup>, 28



TOUCH/FEEL

Arms:

1. Hugging a tree while climbing #14

2. Hugging another person #21

3. Brushing against tree branches

4. Walking arm in arm

5. Holding a baby in arms

6. Holding an animal #16

-----

TOUCH/FEEL

Teeth:

1. Crunching a piece of celery/  
carrot #20, 21

2. Biting into a tomatoe

TOUCH/FEEL

Tongue:

1. Catching waterdrops
- 2.
2. Animal licking a person
3. Licking fingers
4. Licking fruit

#21

TOUCH/FEEL

Lips:

1. Kissing other lips/kissing cheeks #21
2. Carressing the petals of a flower #19
3. Feeling the skin of a fruit

TOUCH/FEEL

Torso:

1. Rolling in the grass (see #12, 24  
Kinst/vestib.)

2. Standing under water fall

3. Bodies rubbing

#29

4. Splashing in water

#24<sup>A</sup>, 31

---

TOUCH/FEEL

Feet/toes

1. Squishing in mud

2. Walking on stones

3. Sand in toes

#22

4. Playing toes to toes

#28, 29

5. Walking through the grass

#30

6. Splashing in water

#15, 30

TOUCH/FEEL

Legs:

1. Sliding in dirt

2. Climbing a tree

#3, 12, 14

3. Wading in the water

#10, 15, 13

TASTE

Tongue:

1. Licking a fruit (See T/F tongue) #21

2. Slurping water (see Taste/mouth)

3. Licking lips (own)

## TASTE

Mouth: Lips/Teeth

1. Eating fruit and Vegetables (see T/F teeth) #4, 6, 20, 21, 23
2. Chewing on grass
3. Drinking water (from hands/  
(in stream)(see Tongue Taste)

## CUTANEOUS

Arms:

1. Scratch from sharp branches

## CUTANEOUS

Feet/Toes

1. Jagged stones

## CUTANEOUS

### Hands/Fingers:

1. Thorn from a rose
  2. Jagged rock
- 

## KINESTHETIC/VESTIBULAR

### Whole body/torso

- |                                 |                   |
|---------------------------------|-------------------|
| 1. Running                      | #7, 8, 12, 13, 31 |
| Jumping                         | #30               |
| Rolling in the grass            | #12, 24           |
| 2. Acrobatics                   | #24               |
| 3. Dancing (tree movement etc.) |                   |
| 4. Swinging/hanging             | #23, 31           |



## KINESTHETIC

### Face:

1. Wind blowing in the face #7; 8  
running
- 

## OLFACTORY

### Nose:

1. Noses sniffing/smelling
2. Noses sniffing - flowers #8, 9, 19
  - grass
  - air

## AUDITORY

### Ears:

1. Birds chirping

2. Water running

#10, 11, 27

3. Leaves rustling

#9, 18

4. Animals - dog barking

#16, 17

---

## VISUAL

### Eyes:

1. Eyes staring (distance)

2. Eyes blinking (strong sun)

#29, 30

3. Big vs small

Wide vs narrow

vast vs confined

hilly vs flat

bright vs dull

Achromatic vs chromatic

Dark vs light

BODY PARTS

- eyes
- none
- ears
- lips
- teeth
- tongue
- hands
- arms
- torso
- legs
- feet
- toes
- belly buttons

## ANIMALS

- horses
- dogs #16, 17, 29
- cats #26
- insects #19, 22
- birds
- cows #26
- sheep #26
- goats
- ducks #26
- chickens /rooster #26, 27
- pigs

# FRUITS/VEGETABLES

- Apple
- Orange
- Watermelon
- Grapes
- Peach
- Banana
- Celery
- Tomatoes
- Peppers
- Carrots

#22

## ENVIRONMENT

- Trees/forest

#25, 27, 28, 1, 2

- Fields/grass

- Flowers

#18, 23, 27, 28

- Water

#27, 28

- Sky/clouds

#27, 29

- Foliage

#18, 28

- Mountains

- Rock

- Earth

#17 -

APPENDIX II.

SCRIPT

# SECTION 1. OPENING

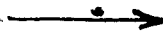
SHOT	VISUAL	ROLL	SHOT	AUDIO
1-1	Children's Drawings			
2	Sun	39	11	It's A Small World
3	Panning Mountains	39	16	- (side 2: Final piece)
4	Birds in sky/clouds	39	5	
5	Birds on ocean	39	6	
6	Water/beach/child	39	1	
7	Ducks in pond	39	4	
8	Rainbow	39	8	
9	Flowers	39	12	
10	Trees on hill/birds/clouds	39	2	
11	Forest/sky	39	3	
12	Trees/sky	39	18	
13	Squirrel	39	19	
14	Sun/flowers	39	20	
	Girl (cw)	41	2	



# SECTION • 2 • THE BODY

SHOT	VISUAL	ROLL	SHOT	AUDIO
2-1	Eyes	30	1	'Golliwog's Cakewalk' (side 2: 3rd piece)
2	Eyes	32	3	
3	Eyes	33	2	
4	Eyes	33	3	
5	Ears	32	4	
6	Ears	32	6	
7	Ears	32	3	
8	Nose	32	5	
9	Nose	32	6	
10	Nose	35	3	
11	Mouth/tongue/teeth	32	5	
12	Mouth/tongue/teeth	33	1	
13	Mouth/tongue/teeth	33	4	
14	Hand/fingers	32	4	
15	Hand/fingers	28	13	
16	Hand/fingers	33	6	
17	Arm/elbow	34	3	
18	Arm/elbow	35	3	

# SECTION 2 THE BODY (Cont'd.)

SHOT	VISUAL	ROLL	SHOT	AUDIO
19	Legs/knees	24	5	'Golliwog's Cakewalk' (cont'd.) 
20	Legs/knees	34	2	
21	Toes/feet	28	10	
22	Toes/feet	34	1	

# SECTION 2A - INTRO-TITLE

SHOT	VISUAL	ROLL	SHOT	AUDIO
2-23	Anthony running naked	31	9	Voice over 'Golliwog's Cakewalk'
24	Fingers in orange	4	1	Dialogue
25	Smelling flowers	8	8	(see pgs. II.13 - .14)
26	Smelling flowers	9	4	
27	Eating orange: Joanna (cw)	4	2	
28	Licking lips	33	4	
29	Shading eyes	29	5	
30	Ears	32	3	
31	Ears	32	3	
32	Ears	32	6	
33	Back rubbing	29	1	
34	Hugging/kissing	21	2	
35	Rolling in the grass (sm)	24	2	
36	Rolling down sand dunes	36	3	
37	Running	12	1	
38	Jumping rocks	10	1	
39	Slide	6	3	
40	Ring around the rosy	7	1	

SECTION 2A • INTRO-TITLE (Cont'd.)

SHOT	VISUAL	ROLL	SHOT	AUDIO
41	Fruit	35	6	Voice over 'Golliwog's Cakewalk' (cont'd.)
42	Hand/kitten			
43	Flowers	27	6	Dialogue See pgs. 1.13 - 14)
44	Clouds	29	7	
45	Water	37	1	
46	Title	41	1	Blank

# SECTION • 3 • TREES

SHOT	VISUAL	ROLL	SHOT	AUDIO
3-1	Focusing in on branches	1	3	'Arabesque'
2	Children walking in woods	7	2	(side A: Final piece)
3	Josh/Jennifer: climbing trees	3	2	
4	Cliff: hanging from tree	14	5	
5	Cliff: climbing tree	14	6	
6	Cliff: high in tree (cw)	14	6	
7	Crawling down tree	12	5	
8	Crawling down tree (cw hands)	12	5	
9	Kenny: in birch tree	14	1	
10	Hands feeling bark	30	7	
11	Tree stump	28	8	
12	Trees	28	4	
13	Trees	28	4	
14	Blowing leaves	18	1	
	Dissolve			
	↓			
	Flowers			

# SECTION 4 FLOWERS

SHOT	VISUAL	ROLL	SHOT	AUDIO
4-1	Children running through flowers	8	1	'Arabesque'
2	Paul: crouching in dandelions	8	6	
3	Daisies in field	19	9	
4	Daisies in field	19	9	
5	Joanna: daisies on lips	19	5	
6	Joanna: smelling peonies	19	2	
7	Flowers: Purple	21	7	
8	with butterfly	27	6	
9	garden	23	3	
10	garden	23	4	
11	yellow/orange (cw)	34	4	
12	water lillies	27	3	

Dissolve

Water

SECTION 5 WATER

SHOT	VISUAL	ROLL	SHOT	AUDIO
5-1	Running brook waterfall	27	4	'Arabesque'
2	Water gushing on feet	30	9	
3	Children splashing (sm)	31	2	
4	Bobbing in water	24	8	
5	Leslie: splashing in lake	32	1	
6	Cliff: walking in rapids	10	4	
7	Rushing water	11	4	
8	Waves/sand/rock	37	1	
				II.8

earth/sand/rock

# SECTION 6 EARTH/SAND/ROCK

SHOT	VISUAL	ROLL	SHOT	AUDIO
6-1	Joanna: in sand pit	37	2	'Arabesque'
2	Joanna: sliding into pit	37	2	
3	Hands in sand	22	3	
4	Feet in sand	22	3	
5	Bambi: pulling apart goop (cw)	9	2	
6	Feet digging in moss	10	6	
7	Hands playing with stones	20	5	
8	Josh: carrying rock	19	8	
9	Children climbing around rocks	7	4	
10	Josh/Jennifer: climbing up rocks	3	1	
11	Mountain	34	5	
12	Mountain	34	6	

Andrew on hill (eating)



# SECTION 7 • EATING

SHOT	VISUAL	ROLL	SHOT	AUDIO
7-1	Andrew: on hill eating orange (cw)	6	1	'Arabesque'
2	Fingers in orange (cw)	4	1	
3	Pambi: biting into apple	21	3	
4	Pambi: Licking apple	21	4	
5	Paul: eating apple	21	5	
6	Paul: eating carrot	20	6	
7	Pambi: eating carrot	21	1	
8	Eating watermelon	23	1	
9	Joanna: eating corn	38	1	
10	Andrew: eating orange (sm)	4	2	
	Puppies at mother's breast			

# SECTION 8 ANIMALS

SHOT	VISUAL	ROLL	SHOT	AUDIO
8-1	Puppies at mother's breast	29	9	'Arabesque'
2	Sheep eating hay	26	2	
3	Cow eating grass	26	5	
4	Cow eating grass	26	6	
5	Bug in grass	22	1	
6	Children playing with caterpillar	22	2	
7	Frog in hand	32	2	
8	Frog on arm	32	3	
9	Puppies in grass Joanna	16	3	
10	Joanna: with arm around puppy (cw)	16	5	
11	Boxer/dobermans (cw)	1	1	
12	Dogs frolicking (sm)	1	2	
	children running (sm)			

SECTION • 9 • ENDING

SHOT	VISUAL	ROLL	SHOT	AUDIO
9-1	Children running (sm)	13	4	'Arabesque'
2	Joanny: bounding on shoulders	35	4	
3	Sea gull flying	37	3	
4	Joanna: bounding	35	4	
5	Sea gull swooping	38	2	

BLACK

# VOICE OVER

## DIALOGUE

## VISUAL

## SHOT

2-23	Anthony: running naked	Oh nature, there are so many ways we can become closer.
24	Fingers in orange	I can feel you.
25	Smelling flowers	I can smell you with my nose,
26	Smelling flowers	and even with my whole face.
27	Eating orange	I can taste you,
28	Licking lips	and lick you.
29	Shading eyes	My eyes reveal your wondrous ways,
0/31/32	Ears	and my ears, your mysterious sounds.
33	Backs rubbing	You have given me the desire to touch,
34	Hugging/kissing	to kiss.....to love.
35	Rolling in the grass	Over and Over, the world turns over as I roll through the grass.
36	Rolling down sand dunes	As I tumble down a mountain of sand I feel you with me.
37	Running (sm)	Running is like sailing with my senses, all around me the wind whooshes, whistling in my ears, cooling my mouth.
38	Jumping rocks	I leap and land softly,
39/40	Slide/ring around rosy	I feel my whole body in motion.
41	Fruit	Tasting,

VOICE OVER

DIALOGUE

VISUAL

SHOT

42 Hand/kitten

43 Flowers

44 Clouds

45 Water

46 Title

Touching,

Smelling,

Looking

and listening; I sense all that is  
around me.

# AUDIO VISUAL SYNC

AUDIO		TIME	TIME	FILM
Blank		0:05	0:05	Black
'It's A Small World' 1 (instrumental)		0:06	0:05 0:01	Black Sun (drawing)
'It's A Small World' 1 (words)		0:51	0:51	Children's drawings
Blank		0:02	0:02	Black
'Golliwog's Cakewalk' 2		0:47	0:47	THE BODY (section 2)
Voice-over 'Golliwog' (see dialogue page 5)		1:16	1:16	INTRO-TITLE (section 2A)
Blank		00:03	0:03	TITLE: 'The Sense of Nature'
'Arabesque' 3		7:30	7:30	Experiencing the environment (sections 3-9)
		8:160	8:160	
		10:40	10:40	
(1) It's a Small World (Disneyland - side 2 final piece				
(2) Golliwog's Cakewalk (Tomita - 'Snowflakes Are Falling'				RCA) Side B, 3rd piece.
(3) Arabesque (Tomita - 'Snowflakes Are Falling' - RCA) Side A, final piece.				

APPENDIX III

QUESTIONNAIRE

CIRCLE ONLY ONE ANSWER FOR EACH QUESTION

1. Caterpillars:

☐ I

- A) are fun to watch as they crawl on the ground.
- B) are pink.
- ☒ C) are fun to touch and to have them walk up and down my arm.
- D) are long and have lots of feet.

2. An apple in my mouth:

☐ I

- ☒ A) crunches between my teeth.
- B) tastes good.
- C) is round.
- D) tastes like a banana.

3. Dump me in a puddle of mud and I will:

☐ II

- ☒ A) jump up and down while the mud trickles down my body.
- B) cry.
- C) run right out and take a shower.

4. Puppies:

☐ I

- ☒ A) are warm and snuggle up close.
- B) green all over.
- C) cute and playful.
- D) furry.

5. I would prefer to learn about trees and leaves by:

☐ II

- A) watching a T.V. program about them.
- ☒ B) taking a walk in the woods.
- C) talking to a tree



6. Running fast:

☐ I

- A) is for boys and girls.
- B) makes me tired.
- ☒ C) fills my ears with noises.
- D) makes me sweat.

7. Nature is:

☐ I

- A) bricks, plastic and cars.
- ☒ B) lakes, flowers and fruit.
- C) everywhere.
- D) 'mother nature' on T.V.

8. On a hot summer day I would prefer to swim:

☐ II

- ☒ A) In a lake.
- B) in a swimming pool.
- C) in a tea cup.

9. Rolling in the grass:

☐ I

- A) makes me dirty.
- B) is silly.
- C) makes the grass flat.
- ☒ D) makes everything turn over and over.

10. To get to the top of a tree, I would:

☐ II

- ☒ A) climb up with my arms and legs.
- B) use a ladder.
- C) flap my arms.

11. If I were caught in a warm summer rain storm, I would:

II

A) go home.

(B) catch the water drops on my tongue.

C) use my umbrella to keep dry.

12. An orange:

I

(A) is mushy and drippy.

B) is blue.

C) is round.

D) rolls on the ground.

13. I would like to reach the clouds so that I could:

II

A) wave to people in airplanes.

(B) feel if the clouds are really soft.

C) be up high.

14. Bouncing up and down:

I

A) makes my hair fall in my eyes.

B) makes me laugh out loud.

(C) makes me feel like a bird flying.

D) makes my money jingle in my pocket.

15. If you put a flower near me, I would:

II

A) smell it.

B) walk away.

(C) rub it all over my face.