THE EFFECTIVENESS OF SLIDE-TAPE PREPARATION FOR NATURE EDUCATION FIELD TRIPS

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ABSTRACT

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An audio-visual program was designed and produced according to current instructional and media learning theory to prepare 5th grade francophone students scheduled to visit the Mont St. Hilaire Nature Conservation Centre. The specific aim of this study was to improve the educational experience of students participating in naturalist led field trips, by stimulating interest, shaping attitudes, and providing relevant information prior to the visit, and resulting in the conformity of student behaviors to the objectives of the Centre.

Experimental groups from the schools viewed the program but all groups were tested on the domaines of knowledge, attitude and behaviour. The results of the evaluation revealed significant differences in favour of the Experimental groups for all tests and measures except one. T-tests for the knowledge and attitude data gave T-values of 12.39, $p<.001$, and 10.41, $p.<.001$ (knowledge) and t-values of 3.37, $p<.002$ and 2.81, $p<.007$ (attitude) for the two schools respectively, indicating a notable increase by experimental groups.

Observation of behaviour during the field trip as reported by naturalist-observers resulted in significant differences favouring experimental groups for one school with a one-tailed t-value of 2.986, $p<.05$. The lack of significant difference between group for the other school was attributed to other variables moderating the behaviour of students.

In light of the favourable statistical performance of experimental groups and the positive subjective evaluation by students, the program was considered a success and will be implemented as part of the nature

interpretation program at the Centre. A copy of the slide-tape program can be found in the Concordia University library.

ACKNOWLEDGEMENTS

The author wishes to thank the Mont St. Hilaire Nature Conservation Centre and its director Alice Johanssen for the full support given to this research study. Special consideration goes to Alice for her leadership in Nature Interpretation, her enthusiasm for nature itself, and her considerable help and guidance throughout the course of this study.

Special thanks go to the naturalists who participated in the field trips and design of the project and collected some of the data for evaluation. These included: Robert Peukert, Michel Drew, and Pauline St. Amour. The author would also like to thank Margo Critchley and Mrs. Reid for their secretarial support in typing and organizing various parts of the study.

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The author is pleased to mention on behalf of all those who appreciate the achievements of the Mont St. Hilaire Nature Conservation Centre, their gratitude for the continued support of the World Wildlife Fund, the Quebec Department of Lands and Forests,

and the Hautes Commissariat des Loisirs. Their understanding of the need for public appreciation and awareness of the special environment which is our heritage made this study possible.

And finally, my special indebtedness to my mother who not only gave encouragement throughout, but made sure the last words were The End.

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CHAPTER I

PREFACE

This study has been undertaken to improve the quality and educational outcomes of nature education field trips. The motivation for this project was derived from the authors work as a nature interpreter, specifically at the Mont St. Hilaire Nature Conservation Centre. For this reason the first chapter of this thesis-equivalent paper is devoted to the description of the Centre, its objectives, and the methods employed there. This is particularly important to set the stage for those employed in the field of nature interpretation who wish to make use of this study, in their own situations.

For those interested mainly in the research methodology and outcomes of the study, this first chapter can be bypassed. Chapter 2 introduces the nature of the problem, Chapter 3 provides the design rationale, Chapter 4 the methodology, and Chapter 5 and 6 provide the results and discussion.

It should be noted that a great deal of research is still required in the fields of outdoor learning and nature education. For those interested in pursuing further research in these fields Chapter 7 Summary and Implications provides a brief discussion of related research possibilities.

The author sincerely hopes that the type of applied research

represented by this study will be encouraged by agencies responsible for Nature Interpretation and will promote a closer working relationship between them and educational institutions in general.

The Mont St. Hilaire Nature Conservation Centre

1. History and Purpose

Mont St. Hilaire rises abruptly 1200 feet above the surrounding plain, a oasis only 20 miles from the metropolis of Montreal. Its relatively undisturbed mature forest provides a unique laboratory for ecological studies and a haven for those seeking escape from the city.

The Gault Estate is a 2700 acre wildlife sanctuary which occupies the entire inner basin and most of the outer ramparts of Mont St. Hilaire.

The estate was bequeathed to McGill University in 1958 through the generosity of Brigadier A. Hamilton Gault who owned and cherished this wilderness property for fourty-six years.

It was his wish that "the beauties and amenities of the mountain be preserved for all time to come not only in the interests of the University itself, but through its corridors of learning as a great heritage for the benefit and enjoyment of the youth of Canada".

The mountain estate has been divided geographically to serve a dual purpose. To avoid the conflict of academic and leisure time interests, the University has divided the Gault Estate into two independent zones:

A) The Public Sector - represents 1500 acres open to the

SECTEUR PUBLIC SECTOR

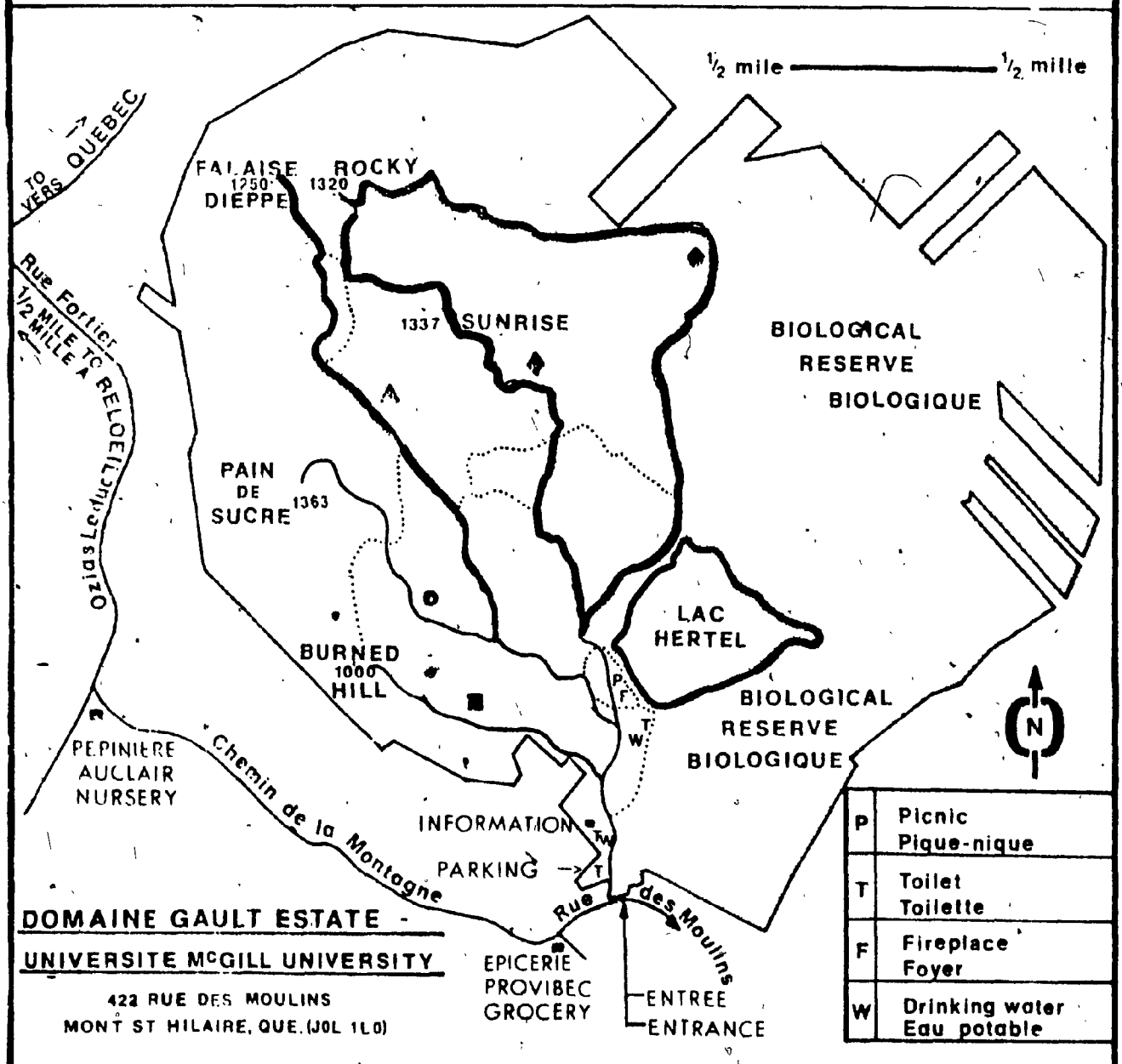
* 1500 acres
15 miles of marked trails
* 15 milles de sentiers indiqués
Distance from Beloeil to entrance: 3.5 miles
* Distance de Beloeil à l'entrée: 3.5 milles
Open during daylight hours
* Ouvert tous les jours jusqu'au coucher du soleil

BIOLOGICAL RESERVE BIOLOGIQUE

* Entrée autorisée par permis écrit uniquement
Entry by written permit only

1200 acres consacres a la recherche biologique
* 1200 acres set aside for biological research

1974



CENTRE DE CONSERVATION DE LA NATURE DU MONT ST-HILAIRE NATURE CONSERVATION CENTRE

general public for activities which do not alter or consume the environment, and

B) The Biological Reserve - representing 1200 acres set aside exclusively for academic research in the natural sciences.

Protecting this unique and vulnerable heritage has become increasingly difficult as annual attendance climbs to approximately 100,000 visitors per year and as encroaching commercial, industrial and residential interests tighten their grip around the perimeter.

The Mont St. Hilaire Nature Conservation Centre had its beginnings officially in 1972 when it was chartered as a non-profit, bilingual organization. Prior to this in 1970 a pilot education program had been initiated on the Gault Estate by Alice E. Johanssen, then director of the Redpath Natural History Museum of McGill University. She was aided by Jean-Paul Thibeault also with the Redpath Museum, and now in charge of the nature education programs at several ecological centres of the Department of Lands and Forests in Quebec.

With the support of McGill University, the World Wildlife Fund, and private membership contributions of individuals and companies, the initial pilot project was transformed into a full time nature education program for all ages. By concentrating its activities within the varied and extensive Public Zone and by conducting within this area a dynamic program of ecological education, the Nature

Centre has increasingly played an important role in the public awareness of the environment and environmental problems.

Led by its Director Alice Johanssen, the Centre has evolved today to the only full time Nature Conservation Centre serving the Montreal community. In 1972, its first official year the Centre served 3600 students with its naturalist staff and an additional 3300 independent students. By 1978 the demand for naturalist services had outgrown the Centres' capacity. With five permanent naturalists, seasonal naturalists, and a small support staff, the Centre received 10,650 students on a reservation basis. An additional 10,000 students used the area without the benefit of naturalists. Some of these latter were denied services because the available naturalists had been reserved many months in advance. Others were led by their own teachers who had graduated from the Centre's teacher training program.

Today the Mont St. Hilaire Nature Conservation Centre receives increasing support from the World Wildlife Fund of Canada, from the Quebec Department of Lands and Forests, and from the Haute Commissariat des Loisirs. It is recognized as a leader in nature education in Canada and has influenced or trained many of the leaders in this field in Quebec and elsewhere.

The immediate purposes of the Centre are to help McGill University to:

A) Protect the entire mountain through a broad program of

TABLE 1

BILINGUAL SCHOOL PROGRAM

Skilled leaders from the permanent Nature Centre staff are available by appointment to lead school classes in field trips supplementing the curriculum. Their experience in all seasons makes a guided tour a shared adventure during which students identify themselves within nature's scheme and become aware of the basic principles governing all living things.

Tours are adapted to the educational level and the special interests of each group.

A basic per capita charge is made for these services, varying according to the time and complexity involved.

GROUP VISITS

Half day — A simple ecological tour. Grade 4 or younger.

Full day — Extended ecological tour, plus practical projects. Grade 5 and over.

*Two Day Visit — Introduction to Ecology. An overnight stay, available only on long notice, provides more intensive experience in outdoor observation, group projects and individual research. Grade 6, Secondary I and II, and CEGEPS.

BILINGUAL LEADERSHIP TRAINING

Perspective for Teachers and Leisuretime Leaders.

One day tours — Observations in the same area at different seasons provide opportunities for comparison and contrast, as well as an understanding of cycles and seasonal adjustments.

*Week-end Workshops — Intensive observations literally from dawn to starlight are available at all seasons for groups in overnight residence.

*Summer Workshops — Five consecutive days of field observations, practical projects and group discussions are used to blend theory and practice and to evolve a philosophy of outdoor education.

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*Overnight dormitory accommodation can be provided for groups of up to 32 persons. Details on request.

TABLE 2

STATISTICAL VISITATION OF SCHOOL GROUPS TO THE MONT ST. HILAIRE NATURE CONSERVATION CENTRE

Year	Number of Students (guided by Naturalist)	Number of Students (independent)
1972	3,582	3,243
1973	6,109	25,095
1974	7,414	28,180
1975	8,432	14,052
1976	7,559	9,927
1977	8,188	9,767
1978	10,656	9,827
1979 (1st half only, Jan-July)	6,805	7,352
TOTAL —	52,008	107,443

Note: As of the 1974 school year restrictions were enacted limiting the number of independent school groups on the mountain each day. This was done due to the damage and disruption often caused by these groups.

. nature interpretation for the public, and

B) To safeguard the Biological Reserve for academic research.

The long range objectives of the Nature Centre are:

A) To Preserve the ecological integrity of Mont St. Hilaire.

B) To Demonstrate the delicate inter-relationships of rocks, soil, plants, animals and man in an endangered ecosystem.

C) To Educate visitors of all ages to an understanding of the forces which mould the environment.

D) To Train a continual flow of bilingual nature interpreters whose leadership will add creative strength to the nature centre movement in the Province of Quebec and elsewhere.

2. Principles of Nature Interpretation

Nature Interpretation, Nature Education, Outdoor Education, Conservation Education - these are all terms often used interchangeably to describe a process of facilitating learning, appreciation and understanding of and in the natural environment.

In terms of a Centre like Mont St. Hilaire we find a naturally preserved area located very near a major urban area, which seeks to achieve its ecological integrity through education and sensitization towards nature, ecological concepts and conservation principles.

According to J.M. Malkowski (1972)

> Nature Centres began in the East as a grassroots means of properly introducing urban people, mainly children to natural wonders. To fulfill their curiosity, to expose them to natural beauties, to

interweave the meanings of birds, butterflies, basswoods, and barricudas in their lives.

Conservation areas similar to Mont St. Hilaire, such as provincial or state ecological centres or parks, federal wildlife refuges, national parks, and other school or community centres have as their main concern the preservation of their ecological integrity within their own boundaries. Strongly linked with this concern are their efforts to educate the public to the specific conservation norms established for their area(s). Thus in the first instance nature interpretation is viewed as an educational process to inform users on how to use, know, and enjoy the specific environment without destroying or damaging it. As Cambell et al (1968) have explained urban people have no opportunity to learn behaviours relevant to natural areas. This has become especially important in terms of the growing pressure large numbers of visitors are creating on the carrying capacity of conservation areas.

Beyond this first responsibility of nature interpretation services lies the more fundamental reality that natural processes operate on a world wide scale and are not dependent on an arbitrary man-made boundary. Thus nature interpretation plays its key role in the transformation of perception from the specific environment to the environment as a global interacting whole.

Wagar (1974) indicated the need to end superstitions about natural processes and the need for people to understand ecological

changes in order to fully comprehend impairment of the environment. Thus nature education can help people develop concepts and understanding of the natural environment, man's relationship to his environment, and thereby remove ignorance about resource management and world resource problems.

At the school level we are concerned with providing activities and educational experiences for "defining judgemental understanding when dealing with man, nature and our society". (McKinley, 1972). Or as Malkowski describes more pragmatically:

> On walks we attempt to create an environmental experience through observation - that is an understanding of our place in and with, rather than above, the Earth. We stress concepts, rather than mere identification. Taxonomy to us is a tool, a handle. We avoid naming something unless we intend to discuss its habits, habitat and niche. A student who learns to observe in pursuit of fundamental concepts knows more in my opinion than one who merely recognizes the flora and fauna of a region.

Stoddard (1962) goes beyond the pragmatics of education to the spiritual essence of our existence.

> Outdoor recreation can help fulfill some basic human needs and desires such as peace of mind, security, adventure, play, sense of belonging, sense of reality, reverence for life and oneness with nature.

Thus nature interpretation utilizes the educational and recreational personalities of the natural environment to create a meaningful perceptual experience.

3. Field Trip Methods

The field trip interpretation methods used at Mont St. Hilaire encompass many varied techniques currently in use in the field of nature interpretation. These methods are continually evolving through exchanges with other Centres, participation in nature education seminars or conferences, and experimentation. The Centre staff is currently working on a valuable project in conjunction with a Department of Lands and Forests grant which involves the compilation of all these techniques, games, projects, etc., into a manual or guide for nature interpreters and educators.

In terms of providing meaningful experiences for students, the naturalists depend on an extent to the spontaneous discovering of the students. This leads to meaningful discussion and learning for things the students find interesting and maintains their motivation and interest. The naturalists try to maximize the use of the various senses to increase the observational capacity of the students.

As Tilden (1957) so aptly expresses,

> Another characteristic very pronounced in younger children partly because of their lack of inhibitions, but carrying over in no little degree through life, is the love of personal examination through three senses other than sight and hearing. Most notable is the urge to know 'what it feels like'.

The naturalists at Mont St. Hilaire vary their program day according to the age and interest level of the group, and the

seasonal variations of the area, etc. A full day program would normally consist of 2-2½ hour hike along one of the loop trails on the mountain during which the students have an opportunity to discover and observe the natural phenomena in the various ecosystems. These would include birds, plants, animals, rocks, insects, weather, etc. This enables the naturalist to point out interrelationships between a particular plant and animal or other ecological processes. In each case not only is the species identified where relevant, and details provided concerning its specific natural history, but it is then related to its function within the ecosystem. As Tilden precises the treatment,

> A cardinal purpose of Interpretation it seems to me is to present a whole rather than a part, no matter how interesting the specific part may be

J.M. Malkowski (1972) provides a specific anology,

> Discussing the monarch butterfly, its miraculous metamorphosis and impressive migratory efforts is fine to a degree. It satisfies the curiosity, makes familiar some detail of an environment which is far to foreign to adults and children, and it creates a respect out of knowledge. But it makes more sense if we can more directly relate our discussions to everyday living, now, where our needs for quality survival have become so critical. Dangling that monarch butterfly as a carrot to attract the participants attention and belief so you can better introduce life systems of air, water, land-use, and non-pretty necessities like sewage treatment plants and nuclear power plants - makes a lot more sense.

These principles represent some of the concepts followed at

the Nature Centre, throughout all stages of the field trip experience. Most important is the process which creates respect and reverence out of knowledge. This is the motivational basis for any person to want to learn more about the processes which support our natural world.

Stage two of a day program normally involves the use of an ecological project or game which absorbs the interest and physical energies of the students, provides a play or social component to the educational process, and teaches or presents an ecological concept. These projects or games might range from a specific study of a particular eco-enviroment such as a stream, lake, wood, pond, or field, or a game such as a Personnification project where each student takes on the role of a particular animal, plant, or physical force, and interact according to the laws of nature.

In essence then the effectiveness of the naturalists rests in their spontaneous educational ability to encourage and interpret the discoveries and activities of the students and develop meaningful discussions around ecological principles. The naturalists employed at the Mont St. Hilaire Nature Conservation Centre who participated in this study were the full time staff of the Centre including the author. Their backgrounds varied academically in the fields of biology, ecology, forestry, education, etc., and experientially from School Boards, National Parks, Provincial Parks to training within the Centres Training Program. As seen from the Table which

gives the statistical use of the Nature Centres services from 1972-1978 these naturalist handled thousands of school children annually as well as special groups such as handicapped, old age and teacher training sessions. Their experience was a great advantage and help in the completion of this study.

CHAPTER II

INTRODUCTION

Nature of the Problem

The problem is primarily a question of the psychological readiness of students scheduled to visit a Nature Conservation Centre, or similar area. Long (1974) of the Saskatchewan Museum of Natural History states:

> A long-standing problem with interpretation activities has been the arrival of ill prepared groups and teachers for tours of the Museum and naturalist-guided field trips. The invariable result was that the group left with little or no lasting benefit from the trip.

This experience has been shared by nature interpreters everywhere and is a definite problem of the Mont St. Hilaire Nature Conservation Centre. Whereas naturalists sometimes are able to visit schools prior to a visit, their services are more often required in the field. It was agreed that some form of preparation was necessary for groups visiting the Centre. Algar (1973) states that such preparation for classes should:

1) Stimulate their interest in learning about the forest;
2) Keep them from being too passive or too hyperactive on the field trip; and
3) Keep them from being too excited about getting out of school

and going on a trip.

Another point which is emphasized in such preparation is the adherence to conservation norms in a protected area, a subject which is well described by Jones (1974). The following discussion reviews some of the research relevant to outdoor learning and identifies the various problems experienced by the naturalists of the Mont St. Hilaire Nature Conservation Centre. The aim of this study was to develop a preparatory audio-visual program which would eliminate these various obstacles to a successful field trip.

Review and Discussion of Research in Outdoor Learning

The outdoor environment provides a unique opportunity to stimulate and influence the learner, especially since it is a new setting involving new sets of relationships between people and places. Krathwohl (1964) writes:

> New objectives can best be attained where the individual is seperated from earlier environmental conditions and when he is in association with a group of peers who are changing in much the same direction, and who thus tend to reinforce each other.

This describes very well the dynamics of the outdoor education field trips. At the same time the very nature of the outdoor environment, with its fantastic variety of stimulus factors operating on the student and group, creates learning problems.

Identifying the stimulus properties which are active and influence perception and behaviour in a natural setting should clarify the nature of these learning problems.

W.H. Ittelson (1973) identifies seven properties of environments which may affect perceptual responses. These properties are listed below and used as a basis of discussion for learning problems in a natural setting such as Mont St. Hilaire.

1. Quality of the Surrounding
2. Multimodal
3. Peripheral Stimulation
4. Too-much Information
5. Action
6. Meanings and Motivational messages
7. Ambiance

The Quality of the Surrounding forces the observer to become a participant and evokes exploratory behaviour (Ittelson, 1973).

The subject of exploratory behaviour is central to the concept of using the natural environment for education. The change in the variety and quantity of stimuli is counted upon to evoke curiosity and arouse the desire to ask questions and learn. The role of the nature interpreter is essentially one of explaining the discoveries of the children by simplifying and revealing the infinitely complex relationships of which they are a part.

A problem which arises in this context stems from the ratio of

interaction between the students and the naturalist. According to a study entitled Kindergarten to Grade Four Behaviour on Forest Conservation Field Trips (Algar, 1973), when groups are deeply involved in discussions and are skillful at problem solving, all children are taking part in the discussion and topics are originating from the children. The guides are just providing questions and information when appropriate. In this situation groups tend to cover more subject matter and there is more complete group interaction with the naturalist and more active observation of the forest. If, on the other hand, children are more interested in forest interaction, there is less tendency for them to actively observe and get deeply involved in questioning and discussing.

The opportunity to know, to intelligently appreciate, and much more, is provided by the interpreter who stands ready, willing and able to help (Shomon, 1970). The ratio of naturalist/student interaction and forest/student interaction should achieve a balance which enables learning results and attitude change to follow.

The term Multimodal refers to the number and relative importance of sense modalities through which the environment offers information.

The Centre environment offers incredible opportunities for learning through the use of all the senses, and one of the aims of outdoor education is the expanding or development of the senses. To perceive and understand the natural world in all its beauty and complexity requires that the senses must be opened to experiencing.

Educational reserach has shown that the efficiency of learning varies directly with the number of these senses which are brought into use in an interpretive situation (Stacey & James 1960). Perception tends to be paritally selective due to habit, and people in general depend on the sense of sight and considerably less on the other five main senses: hearing, touching, tasting, smelling and muscular tension. Vernon (1970) explains that the observer may be "set" to perceive particular aspects of the situation because he wants to perceive them or expects to perceive them, perhaps because he has been previously informed that they may be presented to him.

Perception then, is seen as vital in the formation of a person's experience. Perceptual sensitization such as informing students that they will be performing certain activities such as listening to birds and animals, touching plants, smelling flowers, tasting bark or drinking from a stream, may help "set" the students' expectancies.

Peripheral Stimulation is a third inherent characteristic of environments in that peripheral, as well as central, information is always present - peripheral in the mechanical sense and in the sense of being outside the focus of attention. As well the characteristic of Too-much Information is relevant in that environments always provide more information than can possibly be processed. Environments

always represent simultaneously, instances of redundant information, of inadequate and ambiguous information, and of conflicting and contradictory information (Ittelson, 1973). Often during a field trip the naturalist may be in the process of explaining and discussing a discovery of the children, when suddenly a child cries out, having seen something else, thus disrupting the entire group. Hyperactive discovery caused by peripheral stimulation often makes meaningful learning and discussion during a trip impossible. Only to a point can allowing students to be spontaneous and choose their own topics for discussion provide a meaningful experience. Although it would seem at first that the more variation a given environment contains the greater the number and total range of perceptions it can probably induce, and the greater the amount of learning which will result, the human brain has a limited processing capacity. There is besides, a good deal more to learning than perceiving. A learner must be selective or allow the naturalist to be selective for him and be prepared to concentrate and resist distraction. Redundant and ambiguous information can also be interpreted and compensated for by the naturalist who is familiar with the environment.

It is especially important that the student realize the importance of the naturalist in introducing him to the environment and in selecting from the various stimuli, those considered relevant. Again the ratio and quality of the interaction between students and the naturalist is an important consideration.

Environments provide the arena for Action. They define the probabilities of occurence of potential actions and they offer differing opportunities for the control and manipulation of the environment itself.

Environments provide Symbolic Meanings and Motivational Messages which themselves may affect the directions which action takes (Ittelson, 1973).

The way one views the environment is in a very general sense a function of what one does in it, including what strategies are used in exploring and conceptualizing it. J. Sonnenfield (1969) in an article entitled Equivalence and Distortion of the Perceptual Environment states:

> Geographers have for some time been aware of the variable meaning that different elements of the environment have for different populations. Generally these differences in meaning result from perceived utility, different functions or else they result from perceived quality differences in which the environmental element is seen as having the same function but as being of different value for this function.

It is important in this sense that the student understand precisely his purpose in coming to the Centre and the exact physical-social nature of the Centre environment. Too often student behaviour is contrary to the purpose of the field trip and the principles of the Nature Centre. This stems partly from the Action property of the natural setting which evokes expressive physical activities and makes containment extremely difficult. When the group is overly

excited about being out of school and on a trip, hyperactive behaviour expressed primarily in destructive or non-purposeful physical activities is the rule (Algar, 1973). Symbolically the open forest environment with well marked trails represents the park concept where playground actions are permitted, even encouraged. The student does not realize that the Nature Conservation Centre is an environment within an environment in that it has been set aside above all to preserve the ecosystem within its boundaries. Any activity within its boundaries including education contrary to this principle is incompatible with its primary goal. The outdoor environment for the student is normally imputed with the function of games and fun rather than with the function of learning and conservation thus inherently the meaning decides the occurence of certain behaviours. And, in situations where the naturalist is forced to continually lay down rules and use group pressure or punishment, antagonistic feelings develop toward the naturalist (Algar, 1973), and effective communication and learning is made difficult. Advanced psychological preparation in the form of sensitizing students to conservation regulations and the purpose of their visit would help compensate for the motivational message of the outdoor setting.

Safety factors too are particularly relevant in pre-trip preparation, since the natural setting often motivates wild and thoughtless behaviour leading to the possibility of accidents. Jones (1974)

states:

> It is important to stress, not minimize the risks that the use of the outdoors can bring to the uninitiated and the unprepared.

Getting lost or being injured physically in a mountain/forest environment are distinct possibilities if safety norms are ignored. Properly preparing for outdoor expriences requires careful consideration of weather and other natural hazards. Students must adapt to widely varying temperatures; to other living organisms (such as mosquitoes); to specific habitats (such as ponds, rocky areas, etc.). Experience with school groups has shown that disappointment and discontent follow quickly on the heels of physical discomfort. Notably it takes only one or two students within a group to suffer from cold or some other physical problem, to ruin the enjoyment and the learning experience of others in the group. Exploratory need, attention span and retention are affected as a group function.

Environments always have an Ambiance difficult to define but overriding in importance of which certain contributory features are:

A. Social activity in that other people are a part of the situation making environmental perception a social phenomenon;

B. Aesthetic quality; and

C. Systematic quality in that various components and events relate to each other in particular ways (Ittelson, 1973).

Burch and Shelstad (1971) report some tentative findings from a preliminary study of a nature program at Yale University for 42 grade five and six children. In this program they feel nature is primarily valued by the children as a setting for social action rather than being absorbed for itself. They suggest that the goals of the children and the sponsoring group or agency often run in quite different directions. They found a tendency for children to force the natural setting into the familiar, i.e. a meadow becomes a ball field. This tendency will be the predominant pattern unless the group is given a strong set of operant adaptive norms that make nature plausible in its own terms. According to the researchers such adaptive norms can be furnished by a core of experienced peers. With their methods they found that any measurable gains from the experience are in terms of increased social solidarity of existing groups rather than an increased understanding of nature.

Gump and Sutton-Smith (1955) in a field study of activity setting and social interaction conclude that the choice of activities is very important and that it will determine the children's relations to each other and to the leader. They state that activity setting will produce significant and general effects on the social behaviour of its participants, and that an activity one entered will exclude some potential behaviour, necessitate other behaviour, and finally encourage still other behaviour.

It would seem therefore that even more than in the classroom, much of the activity during field trips must be explained in terms of social interaction 'a relation between persons such that the behaviour of either one is stimulus to the behaviour of the other' (English and English, 1958). We are particularly concerned with the dynamics of the groups activities and behaviour which are in harmony or disharmony with the philosophy and objectives of the program.

Visitors to the Nature Centre including school groups, are often unaware of the effects of their activities on other users. For example students observing initials carved on the bark of trees, or names painted on racks will often model their own actions on what appears as an indirect acceptable social norm. Such things as fire, litter, vandalism, erosion, noise, and indiscriminate collection of plants are common occurences at the Centre. The idea for example that flowers cannot be picked may be incompatible with a students' previous experience where flower picking is regarded as highly enjoyable and normal. The explanation in terms of what would happen at the Centre if each one of an annual 100,000 people visiting the Centre picked just one flower, or walked in an easily damaged area, must be responded to in terms of a 'new understanding'. Nature interpretation has as one of its most important objectives the development of an "outdoor conscience" which involves both the

instilling of respect for other individuals' use of the outdoors and respect for the ecological integrity of the natural area.

In short students should be prepared to interpret their actions and the actions of others, past and present, in the light of a new, socially acceptable "outdoor conscience" towards nature.

Conclusion

We want children to follow certain behaviour patterns on these field trips in harmony with the philosophy of the Nature Centre program. In a natural setting motivation for involvement and the potential for learning will result from the novelty of the environment. The type of involvement and its learning consequences depend on the psychological disposition of the group.

In the field of outdoor education the concept of pre-trip preparation is not new. Various types of kits have been produced with the idea of "advanced organizer" (Ausubel, 1969) in mind. Generally speaking these kits are not always adequately designed for class preparation. They often consist of large quantities of information, taxonomies, etc. This can sometimes serve as a frustrating base for teacher-class preparation and not necessarily further the real aims of the field trip.

One answer may be to develop for Nature Centres and similar areas a model design for an audio-visual program using current

instructional theory. Rather than trying to precede or duplicate learning on the field trip the A.V. Program should concern itself with the fundamental group processes of the field trip, i.e. the types of activities and behaviours required to learn successfully in a natural environment. In addition certain basic concepts such as ecology could be introduced in advance to facilitate explanations by the naturalist during the trip. This type of preparation may enable the students to progress from predominantly social and physical interaction to behavioural and attitudinal dispositions relevant to outdoor learning.

CHAPTER III

DESIGN AND PRODUCTION OF AN AUDIO-VISUAL PROGRAM

1. Educational Objectives

The goal for this study can be defined as the design and production of an audio-visual program which will significantly change student predispositions towards more positive behavior during a nature education field trip.

Emphasis has not been put on an increase in the knowledge of natural history (this is left for the field trip itself), but rather on the behavioural dynamics of the field trip. Five behavioral objectives have been identified as the aim of the A.V. program. They involve changes in the domains of knowledge, attitude and behavior.

According to instructional design literature (Mager, 1970), objective should be detailed as behavioral outcomes in terms of the situation to which these behaviours are appropriate or relevant.

Secondary objectives which relate to learning and comprehension will attempt to enable students to recognize terms and concepts which will be used extensively during the outing. The comprehension of such terms as ecology or conservation

are considered vital to the educational outcomes of nature education.

2. Behavioural Objectives

1. The student group will demonstrate a correct understanding of a nature conservation centre by: a) positive results on written and oral tests; b) overt behaviours with respect to regulations and conservation norms.
2. The student group will show they understand their purpose in visiting the Centre by: a) positive results on written and oral tests; b) overt behaviours which demonstrate an interest in learning.
3. The student group will prove they understand and respect the naturalist in his role as leader and educator by: a) positive results in written and oral tests; b) overt behaviours with respect to discipline and participation during the trip.
4. The student group will show they understand the importance of using the various senses by: a) positive results on written and oral tests; b) overt behaviours in using the senses as the naturalist recommends.
5. The student group will arrive at the Centre correctly dressed and equiped for the environmental conditions and

demonstrate their understanding of the need for this by written test results.

The success of the audio-visual program in achieving the above objectives will depend upon a presentation which is designed according to current instructional and media related theory. It is the contention of this study that the manipulation of the characteristics of instruction using research from the field of educational technology can significantly affect the outcomes of the audio-visual program.

3. Review of Research on Media Learning

Among the various learning theories we find considerable variation as to the importance of different variables. A like view is expressed by Glaser (1962) who claimed that the application of current theories of learning will be less fruitful at the present time than the application of current findings.

Tosti and Ball (1969) state that presentational factors are primary in deciding what medium to use for a particular instructional unit or sub-unit. Lumsdaine (1968) explains that interest, motivation, incentive factors, etc., may all figure in the objectives and design of instructional media, both as independent and dependent variables. According to Allen (1967) it appears that a variety of different kinds of stimuli, presenting the learner with many dimensions of the

subject, would be most likely to lead to the development of desirable attitudes.

The media are the means for providing stimuli whether used to motivate, direct attention, set a goal, give a prompt, evaluate, guide thinking, evoke a response or test for transfer (Briggs, Campeau, May, Gagne, 1967). According to these authors the use of multi-media can be jusitifed in four ways:

1) In terms of ways to establish the various conditions of learning needed for various teachign objectives.
2) In that frequent changing of the media may help prevent boredom and maintain interest and attention (Cambell, 1964).
3) Due to learner differences, using a variety of media may improve the likelihood that each child will learn even if this requires some redundancy in the various presentations.
4) To the extent that our choice of media may be faulty, use of several media in redundancy may be to some degree justified.

Different media impose certain limitations upon the intent of presentation form. The choice of medium may rest upon the need to incorporate a method of automatically evaluating the student's response and providing feedback. It may also be viewed in terms of practical considerations such as the economics of an

instructional package, its flexibility or accessibility for use, or its convenience for the classroom.

The design of a media program involves the examination of each objective in turn in order to state the explicit instructional steps and the media by which the required conditions of learning can be established (Briggs, et al, 1967). These same authors stress however that choices of media should be reviewed in terms of such practical matters as how many items require the same set of learning conditions which can be sequenced in a row to provide a long enough use of a given media and an economical package.

Research comparing the effectiveness of mediums such as filmstrips and slides have shown them to be at least as effective as film and often more flexible in terms of pacing, response, and other learning factors (Lumsdaine, 1969).

The use of visuals is due partly to the consideration that projected visuals contribute greatly to the interest levels of learners. High amounts of positive transfer may be expected from pictured representation (such as film, slides, flat pictures) of stimulus objects where the final task performance requires crucial knowledge of these objects (Allen, 1967). Gropper (1963) has called these "criterion visuals" because the use of visual presentations appears to be desirable in those subject matters in which visually perceived physical objects and events are integral

parts of the criterion situation.

In considering the viewers ability to identify the content of the visual field, psychologists explain that naming the objects in a picture is an early essential to the development of perception in children. Identification of content is of course much more than this and it need not be limited to verbal identification. It can and often is identification with our personal categories of past experience. It may be emotional, cultural or aesthetic identification that will often defy verbal description.

Kerrick (1955) found for example that captions can modify the judgement of readers regarding the pictures they accompany. Vernon (1970) points out that although we have no actual experimental evidence of the fact that we tend to perceive most readily what we can name most easily, there are a number of studies that suggest this may be so.

Experimental findings also indicate that the characteristics of a communication that motivates behaviour are extremely important although they must be weighed against those factors which enhance learning. Several experiments (Twyford, 1951; VanderMeer, 1953; and Cook, 1958) indicate that the amount of interest in a film does not predict the amount that will be learned from it, in fact there sometimes may be a negative correlation. It is known however that active involvement in a learning situation is effective for

stimulating both motivation and response. According to Janis and King (1954) active involvement through role playing is effective in producing attitude change.

Motivation can be further analyzed by regarding specific types of situations. In the case of wanting a particular behaviour, if the person can be induced to perform the correct response and then if he is adequately rewarded, this normally strenghtens the tendency to repeat the response.... In the case of teaching someone not to do something a better way to handle the problem is to change it. Instead of teaching him not to do it, teach him to do something the exact opposite.

A study by Mager (1961) suggests that learner motivation increases as a function of the amount of control or apparent control he is allowed to exercize over the learning experience, probably because of a set of greater participation that is achieved.

An interesting finding by J. Annet (1970) reveals that although knowledge of results (KR) has not been shown to reduce drive; it has been shown to direct attention. Variables such as KR, response factors and reinforcement should be manipulated keeping in mind that they often represent simultaneously motivational and informational functions. Motivation associated with KR can be an indirect factor in learning.

Lumsdaine (1963) considers active overt student response of

great interest for two reasons:

1) Procedures which foster active student response are generally though not uniformly favoured by experimental evidence over procedures which do not.
2) More important, overt responses by definition can readily be observed, can be checked and potentially controlled or monitored.

In a study by Lumsdaine, May and Hadsell (1958) use of pupil participation questions with the correct answer given after pupils had responded, increased significantly the substantive information learned from a film on the heart and circulation of the blood. Beyond this, this study and related studies also suggested that more liberal use could be made of titles, questions and other printed words. Lumsdaine also reports a study where active response was provided for by having the lecturer pause at strategic places in the lesson to allow students time to complete a statement he had begun. Students were instructed to think of the correct completion before the lecturer told them what it was thus encouraging anticipation of correct answers as well as competition with the instructor.

The effectiveness of having the audience call out the answers to questions during the audio-visual demonstrations has been shown by a number of studies, notably Kendler, Cook and Kendler (1953),

McGuire (1954), Kanner and Sulzer (1955), Hoveland, Lumsdaine and Sheffield (1949), etc. According to Stimulus-Response theorists, the elicitation of appropriate overt responses by the student, reinforcement or confirmation of these responses, makes possible more effective learning of these responses. For example Hirsch (1952) concluded that there was less effect when students were simply told right or wrong than when correct answers were also presented.

Covert responding has proved equally effective for learning in many situations and could be used through a form of implicit responding. Lumsdaine (1969) talks about a special form of implicit responding when the learner either speontaneously or by direct instruction "imagines" himself performing a response he is seeing demonstrated.

The need for repetition of material to assure mastery is well established by the literature (experimental). The question of optimum freqûency of repeated overt behaviour or covert (implicit) response is looked at in a number of studies. Brenner, Walter and Kurtz (1949) indicated two showings were better than one. Kendler, Cook and Kendler, (1953) varied the number of repetitions of the review section of a training film and found that three repetitions were better than two, and that the learning curve was still rising though the rate had diminished. They also found that requiring the audience to practice calling out the answers aloud during the showing

of the review improved performance on the test by a fairly constant amount at every level of repetition. Implicit practice as shown by Hall (1936) can be effective by simply projecting questions on the screen during the show.

Serious consideration must be given to sequencing of instructional content. In a study by McGuire (1953) of primary effects based upon Hullian Learning Theory, it was found that placing desirable communications first and following them by less desirable communication produces more opinion change than the reverse order. A study by Mager (1970) suggests that the content sequence most meaningful to the learner is different from the sequence guessed by the instructor to be most meaningful, and that the learner's motivation increases as a function of the amount of control he exercizes over the learning experience. The relationship of sequencing and motivation is examined in a study by May and Lumsdaine (1958) and indicates indirectly that trying to reveal everything about a proposed experience in essence simulating almost completely the actual learning experience is negatively correlated with interest in the experience. They demonstrated that showing a film version of a novel does not induce pupils to withdraw a book from the library, but that showing interesting episodes from a novel did increase the number of pupils who withdrew the book.

The research findings discussed in this section served

as guidelines in designing the audio-visual program.

4. Rationale for the Audio-Visual Design

The summary of research findings provided a basis for the design of the program along with the authors experience in the use of various media for audience and classroom viewing.

a. Choice of Media

The choice of media follwed the need for a very flexible format. The practical reality of economics in terms of a limited budget which is common to most nature centres was a necessary consideration. This however was compatible with the physical requirements of both the school environment and the Nature Centre. The Nature Centre required a completely autonomous presentation which could be sent to schools prior to their visit with the assurance that teachers would be able to use it for preparation. The program would eventually be duplicated and distributed to a wide variety of schools and groups where available equipment would dictate the utility of the program.

In terms of directing attention, motivating and stimulating interest, a strong visual medium was necessary. The videotape format was at first favoured since it coincided with another project recording the behaviour of students and offered a compact finished product with all the desirable characteristics identified.

Experience however dictated that not all schools were equiped with playback equipment for videotapes. Often school boards consisting of possibly a dozen schools shared one playback unit. In addition the videotape format was not as flexible as a format which allowed for quick and economical changes in individual items or sections of a program. This was foreseen as necessary for seasonal changes and various other contingencies.

The final choice of a medium was a slide-tape presentation which had all the desirable criteria and few drawbacks. As well the more flexible slide-tape format could always be easily transfered to video-tape and made available in that medium.

b. The Script

The program script was approached in the first instance by creating five sections corresponding to the five behavioural objectives listed previously.

The overall strategy was to present interesting episodes from actual field trips by simulating the visual and aural dynamics of the school groups in action. The rationale was that by presenting students with an interesting demonstration of their peers acting in appropriate ways during a visit, they would model their interest and behaviours accordingly. They would simultaneously, receive motivational information which would at once adjust their knowledge

relevant to the trip such as conservation norms, preparation, and observation methods. The discovery and discourse interaction which normally takes place between students and naturalists was provided by presenting the most interesting sequences of various field trips which were relevant to the particular section. These were or had been taped and photographed by the author and were subsequently edited and grouped with their appropriate objective.

The program sequencing was arranged following the principles given by Gagne (1965), but keeping in mind the interest level and possible preferences of the students. Gagne gives the following seven criteria for instructional units:

1. Gaining and Controlling Attention
2. Presenting the Stimuli for Learning
3. Informing the Learner of the Required Performance
4. Recalling previously Learned Capabilities
5. Guidance of Learning
6. Providing Feedback
7. Promoting Transfer of Learning

Both visual and auditory stimuli were used to create an initial and consistent attention control factor.

Visuals. The slides were chosen for their photographic interest and content to motivate students to want to see more and impress them

with the natural beauty of the setting. At the same time they served as 'criterion visuals' in simulating integral parts of the field-trip experience, and ultimately "presenting the stimuli for learning".

Interpretation of visuals was not left to the imagination of students in most cases but defined through audio or graphic translation. The use of graphics on slides re-emphasized the audio and visual information content which was to be transfered, or stimulated the recall of information through questionning.

The opening scene of the program presents a short series of slides depicting a natural mood of scenery and animals to be found on the mountain in winter. This is co-ordinated with natural stream and bird recordings. This particular sequence was used to create an initial attention factor for interest and control. The visuals are then extended in section 1 to give a more general pictorial view of the mountain and the general activities that go on year round. This broader perspective is used to define the parameters of behaviours which occur on the mountain.

The visual sequencing after section 1 alternates between the presentation of the particular animal narrating the section in various poses and the various groups highlighting the behaviours relevant to the section. These latter consist of episodes of between three and seven slides which show a naturalist and a group of students

observing a particular discovery. These range from insects under the bark of trees to animal tracks in the snow. At the beginning of each of the sections a naturalist is pictured pointing to a sign which indicates the specific objective of the section. This informs the learner of the required performance or content of the section, in visual form.

Audio. The sound component of the program was designed to accomplish various goals. Variety in sound was considered very important in maintaining interest levels and achieving impact at critical points.

Live outdoor sounds such as the music of a running stream or the cries of birds were used to simulate the natural environment and register an initial impact. Actual taping of interesting group interaction provided the best examples of learning, observing and discussion from a wide variety of school groups and naturalists. These live recordings of group interaction were aimed at controlling attention, presenting stimuli for learning, and informing the learner indirectly of required performances through a peer model representation which the student audience could emulate. The naturalist within these sequences is always depicted orally as well as visually as leading the groups and directing discussion. As leaders they are shown providing interesting information and asking leading questions.

The narrator format was used to first establish the hierarchy of the Centre and its serious purpose in section 1. The director as

an authority figure is used to situate the student by providing an overall perspective and to welcome the students. The chief naturalist is then introduced and he presents the objectives of the program so that students can understand what he is expected to know after viewing the presentation. The chief naturalist completes section 1 by nominating the various regulations of the Centre and is heard from again at the beginning of each section as previously described.

Narration was scripted at a level that was appropriate to the comprehension level of the students. Rather than use a standard adult narrator to link the various episodes and guide learning the use of animal personnification was designed to accomplish this and other objectives. Each section starting with section 2 is introduced by a different animal who thereafter comments throughout the section and guides the learning sequences as well as providing information. The Owl, the Racoon, the Woodpecker, the Snowshoe Hare are all animals found on the mountain and their presence is observed by students live or by the observation of tracks and signs.

The live animation of these animals enabled their own natural history to be interwoven with the objectives of the particular section, while stimulating curiosity and a desire to know more. Their emotional and empathetic appeal enabled various rules, conservation norms, and concepts to be discussed without an impersonal discourse or authoritative tone becoming dominant. Here were live animals which

students might see on their visit which were requesting this, suggesting that, and approving something else. The use of different narrators for each section allowed for considerable variety in pacing and tone to prevent a monotonous audio effect.

Review. The use of overt response, repetition, knowledge of results etc., have been discussed in the research review. The need for recalling previously learned capabilities, providing feedback, and promoting transfer of learning are all important functions of an instructional program.

Review sections were incorporated as an integral part of the program for each section. The teacher with the aid of a review guide asks specified questions to the class as a whole. The program at this point has been stopped and the review section announced by a narrator. After receiving the students' answers the teacher then repeats the question provides the correct answer to ensure the students recall the information correctly. This prevents internalization of incorrect information immediately following exposure.

The questions and answers summarize the content of the particular section. Since the function of the learning of information is to promote the transfer of learning to behaviours appropriate to the field trip, the teacher is asked to discuss this

review in the context of the pending visit.

The review sections provide the basis for the construction of the knowledge test which is completed by students following viewing.

Teacher's Guide. The teacher is ultimately the key to any pre-class preparation. In order for the audio-visual program to be used effectively it was necessary for the teacher herself to have some form of pre-trip and pre-program briefing and motivation.

The teacher's guide was prepared in coordination with an oral message on the program tape before the actual presentation began. The first part of the guide (see Appendix) was a psychological explanation of the strategy behaind class preparation. Emphasis was put on the importance of the five behavioural objectives in assuring a successful field trip. In addition ensuring the comprehension by students of the concept of ecology was stressed. This guide also gave brief explanations of the review sections and possible use of the questionnaires in general terms and emphasized the need to read the instructions before using the slide-tape presentation. The same message was recorded on the tape just preceeding the actual show recording.

The second part of the teacher's guide was a manual of operations for achieving the best possible results from the program. Section 1 of this manual listed 10 sequential directions for using the program

effectively from reading the available documentation to repeated showings of the program. Section 2 listed the equipment required to use the slide-tape format and the viewing conditions appropriate to proper visuals and audio quality.

Section 3 of the guide was the review questions and answers sheet which presented each review by section and the potential correct answers for each question.

Section 4 of the guide consisted of a review of the important regulations, conservation norms, and activities or services currently in operation at the Nature Centre.

The teacher's guide was essential to the proper use of the program and its use was carefully observed by the author during the Pilot Study.

Production and Costing. The sequence of production events were those normally followed in a media instructional unit. The objectives were identified and a script created to meet the requirements of the criterion media and learning factors. The script was reviewed by the Director of the Centre on request of the author and refined further.

The next stage involved the compilation of the various components of the presentation including taping of groups, taping of natural sounds, and taping of narrators as well as the photographing

simultaneously of required visuals. The balance of visuals came from the Centre's slide collection. Graphics in the form of short phrases or sentences were then added to certain slides to further define the visuals.

The editing of the various components needed for each section was then undertaken with the audio track finished first. The visuals were then co-ordinated using low frequency tones which would cue the teacher on when to change slides. The script also had indications marked for the correct points to change slides. The use of low frequency tones for manual changing was adopted because of the lack of appropriate playback equipment in the schools.

A Pilot Study was undertaken to verify the effectiveness of the program and justify a final production without changes. Minor adjustments were made to the program mainly in terms of timing in slide changes to better syncronize with audio sounds. A Master tape was produced equalizing the sound quality of the production and the program was considered ready for the Main Experiment.

The production period for the entire media unit ran from the month of January through March. Testing was done in the month of March. Prior to this, various audio and visual components of the program had been accomplished by the author in anticipation of this study and in conjunction with other ongoing projects. The actual number of production hours is therefore difficult to precise. A major time

factor can be eliminated when contributing materials such as slides and tapes are vailable in sufficient quality and content from the library or documentation collections of interpretive centres. This means the production time can be limited to scripting, choosing the appropriate available materials, and final production.

For this study the majority of production time was spent following naturalist-led groups and observing and recording behaviour on film and tape. The final production was carried out by the author in conjunction with Nature Centre Staff and University technicians.

Costing of Production

Personnel		Cost
Studio Assistant:	This person was required to help produce the Master Tape and Synchronization of Slides.	N/C
Performers		
Narrators:	Nature Centre Staff were used for all narration.	N/C
Studio Facilities		
Audio Studio with synchronizer and slide-projector:	This was required for final editing, cleaning and recording syncronization.	N/C

Equipment		Cost
35mm Camera & Lenses:	This includes all equipment for all stages of production. Authors' own used in this case	N/C
Portable Uher Tape Recorder		N/C
Slide Projector (Kodak) Caroussel		N/C
Screen		N/C
Software		
Film and Processing:	Slide film and Processing.	$100
Audio Tapes:	Field taping and final production.	$75
Graphic Art and Duplication:	Graphic composition, photography and duplication of slides.	$60
Duplication of Script, Tests, and Teacher Guide:	For testing and operational purposes.	$20
		$255

Note:

Except for possibly the studio the above equipment requirements are normally available at most Centres and/or schools. Studio time-charge could be estimated at approximately $200 - $300 depending on the rate charged per hour. Allowing for all problems and preliminary editing to be done before entering the studio, actual master production time could be held to a minimum. Further reductions in costing could be achieved if more available documentation is already on hand.

CHAPTER IV

METHOD OF EVALUATION

Introduction

Within the design concept for evaluation of the audio-visual program concern was with a possible causal link between information, attitude and behaviour. It was necessary to examine each of the above domain as they were affected by the audio-visual program and their relation to each other.

The aim of the evaluatory stage of this study was to quantify and qualify to some degree the effects of a specific type of audio-visual program.

An attempt was made to measure the change in information levels of the experimental groups. The influence of an increase of knowledge often changes the attitudinal predispositions and the subsequent behaviour of students (Mager, 1968).

To accomplish this, measurement tests were developed with the intention of assessing the effects of the audio-visual program for each domaine on the Experimental Groups. The Experimental Groups, having viewed the program, were then compared to the Control Groups who were not presented the program.

A pilot study was undertaken to validate the instructional and test instruments. The test was conducted on the established target population in the proposed environment as a field test (Dick & Cary, 1978).

The Pilot Study

Design and Subjects

The evaluation employed a traditional experimental/control post-test only random design. The test group consisted of fifty-six francophone students in the fifth grade of a school scheduled to visit the Nature Centre. This age level was representative of a majority of the classes visiting the Nature Centre, and was given priority over younger age groups because of their ability to derive more from the field trips in terms of learning abilities. The school itself was St. Jean D'arc, a rural school located near Mont St. Gregoire, Quebec.

Materials

The evaluation tests were constructed to best measure each particular objective domaine within the practical limitations of the field trip situation.

The test questionnaires for the knowledge/information domaine were drawn from the information content of the audio-visual program.

In the Taxonomy of Educational Objectives (Bloom, 1969), knowledge is defined as the "recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure or setting. Thus for the purposes of constructing the test questions emphasis was put on the psychological processes of remembering accompanied by the process of relating. This required the organization of a problem question so that it furnished the appropriate cue for the information recognjtion and/or recall.

Two tests were constructed for measuring the knowledge levels of students. The first evaluation test was a paper and pencil measure containing twenty multiple choice questions chosen for their specificity to the information content of the program. This test was refered to as the knowledge test. Special emphasis was placed on the information contained in the five review sections of the program and their related behavioural objectives. (See Appendix).

The second evaluation of the knowledge domaine consisted of a Naturalist report form which measured group knowledge levels. The test contained 9 very specific questions similar in content to certain questions on the knowledge test, without multiple choice, options. This measurement was refered to as the Information Test. It was designed to measure what percentage of the group answered correctly as observed by the naturalist during the initial

stage of the field trip. (See Appendix).

The next stage of evaluation was concerned with the domain of attitudes. According to Fishbein/Ajzen (1975), it is generally accepted that a person forms descriptive and inferential beliefs about objects in the environment. These beliefs represent an informational basis for attitude. The attitude test was constructed by creating belief statements which derived from the information content of the program. At the same time the statements were selected as attitudinal predictors of the behavioural objectives of the program. Because attitude statements are somewhat global in nature, individual items were often related to several of the five behavioural objectives.

The attitude test consisted of twenty-five items scaled to a Likert Format. The scale of measurement had a range of five degrees of agreement or disagreement including a neutral choice. For this study attitude was defined as "a learned predisposition to respond to an object, situation, persons, etc., in a consistently favorable or unfavorable manner.

The final statistical measurement involved the observation and rating of group behaviour by the naturalist leaders. Behaviour Report Form items were identified by the author using Algar's (1973) Field Trip Report Form as a source of valid items for exploring the students behaviour during the field trip. Thirty behaviour items

were identified relating to the five behavioural objectives of the program. The thirty items were divided into five sections corresponding to these objectives. The format used was that of a multiple act criterion which as defined by Fishbein/Ajzen (1975) is a measure based on observation of several behaviours with respect to a given target in a given situation at approximately the same time. In this criterion the behavioural objectives served as the given targets and the thirty items were divided into from 4 to 15 behavioural acts per objective. The observation took place throughout the field trip and therefore was measured at the same time within a given situation. Naturalists were briefed on the operational definitions of each behaviour item for measurement purposes. (See Appendix).

The one non-statistical evaluation of the audio-visual program was the Student Questionnaire. This was developed to assess the students opinions on what they prefered about the program, what they remembered best, and what they had learned. It also sought information on the source of the students knowledge about the Centre prior to viewing the program, why the students wanted to visit the Nature Centre, and what other information not presented in the program they would like to know. The fourteen questions in this questionnaire were presented as a last evaluation in the classroom prior to the field trip.

Procedure.

The author visited the study school one week before the scheduled field trip. Two classes were randomly assigned, a control group comprising 25 students and an experimental group of 25 students. The audio-visual program was presented to the experimental group only, by the teacher using the instructions provided with the program. The author observed the teacher's presentation to ensure there were no difficulties in following the teacher's guide procedures.

After the experimental group had viewed the program, the knowledge and attitude tests were administered to both groups. To ensure the understanding of each question the teacher was asked to read each question aloud to the class along with the possible answers. The students simply had to circle or check the appropriate answers on the tests forms they were given. They were allowed one minute for each answer. On completion of the tests the experimental group was given the Student Questionnaire to complete on their own. Meanwhile the author interviewed the teacher(s) concerning the preparation they had done prior to the program to establish the extent of influence this might have on the test results.

One week later the study group visited the Nature Centre. The naturalists first encountered the groups as they disembarked

from the buses in the parking lot and began their observations at that time. The standard ratio for naturalist/group field trips used at the Centre was fifteen students. For purposes of this study the Experimental group was divided into two random groups and each assigned a naturalist. The same was done for the Control group.

Each naturalist administered the information test in an informal introduction walk from the Parking Lot to the Information Cabin, a distance of about 100 yards. Each of the nine questions was asked and rated during this initial stage of the field trip. The groups then donned snowshoes and during the rest of the field trip day, approximately six hours, the naturalists observed the behaviours of their respective groups using the criterion items of the Behaviour Report Form as the frames of reference. The naturalists had been fully briefed prior to the field trip day on the operational definitions of each behaviour item.

The report form was completed at the end of the day, after the group departed. This was done as a group conference so that degrees of measurement, frames of reference, etc., could be discussed, verified, and redefined where necessary. The author then reviewed each report form with each naturalist to ensure the ratings were valid.

Results

The Pilot Study enabled the various test scores to be examined in relation to question or item content, structuring and sequence.

One question was eliminated from the knowledge test for future evaluations. This question was found unsuitable in that both groups scored perfectly yet the question fell outside the immediate content domaine of the program. Three other questions showed perfect scores for both groups however this was considered positive in that the teacher had done a considerable amount of preparation with the class before viewing of the program. Several changes were made in multiple choice alternatives where better variety or clarity seemed called for. Sequencing of questions was slightly altered so that grouping of similar content questions would not prejudice answers. The knowledge test gave a split-half reliability factor of .8. A t-test showed a value of 7.14 at $p<.001$. Thus the experimental group scored significantly higher than the control group on the knowledge test, indicating that the audio-visual program significantly increased the knowledge levels of students having viewed it.

In the attitude test, twelve items showed higher mean scores for the control group over the experimental group. These twelve items were examined in light of this data although no significant differences were evident. Several of the items failed to discriminate

between subjects with favorable or unfavorable attitudes in relation to the behavioural objectives they were predicting. The majority however did not identify closely enough with the informational basis of the program itself but were peripheral to the content. In all ten items were identified as unsuitable as predictors for attitude/ behaviour relationships.

The information report form yielded scores for the Experimental Group which were significantly higher than those of the Control Group. This showed a high retention factor was realized by the Experimental Group after viewing the program. Sequencing of questions was slightly altered but no questions were eliminated or added. A split-half reliability of .92 was calculated for this test.

The behaviour report form provided no significant results between Experimental and Control Groups. All items however were found to be reliable measures of behaviour. Furthermore the naturalists were able to further refine operational definitions. Three items were added to the report form for measurement under the last two behavioural objectives. These two sections were seen by the naturalists as requiring additional criteria for evaluation.

Subjective Student Questionnaire

The student questionnaires were completed by the experimental

groups after they had finished the knowledge and attitude tests. The results for each category and questionsare recorded below in summarized form. The full record of individual replies can be found in Appendix

Questions One to Four reflect the students' appreciation of the program and what they prefered or disliked about it.

Question 1:

The students were asked if they liked the program.

Answer 1:

Twenty six stated they liked the program.

Question 2 and 3:

The students were asked what they liked the best.

Answer 2 and 3:

Table 3

Summary of Pilot Response to Questions 2 & 3 of Student Questionnaire

Category	Definition	2	3
Animals	Includes general, specific, sounds, talking, habits, pictures, etc.	22	10
Plants	Includes plants, flowers, trees, etc.	0	4
Nature	Includes general outdoors, mountain, countryside, winter view, etc.	2	6
Slides	Includes all visuals	2	0
Miscellaneous	Includes sounds, naturalists, informations, etc.	0	4
No Answer	All others	0	2

Question 4:

The students were requested to list any dislikes about the program.

Answer 4:

Twenty-three students stated they had no dislikes concerning the program. Two students mentioned they did not like when the students read the regulations out loud on tape. This was in section one of the program. One student had no reply to this question.

Questions Five to Seven inquire of the students the various information they remember from the program.

Question 5:

Did you learn something new from the program.

Answer 5:

Twenty-two students replied yes. Three replied no, and one replied "a little".

Questions 6 and 7:

Students were asked to list the most important things they learned. Generally their answers were quite specific. For the purposes of generalizing results for discussion purposes they are categorized in the table below. The individual responses are found in the appendix.

Table 4

Summary of Pilot Response to Questions 6 & 7 of Student Questionnaire

Category	Definition	6	7
Respect	Includes all statements concerning regulations, conservation norms, etc.	4	3
Information	Includes all information concerning animals, plants, ecology, naturalists and other details in program.	17	12
Sensitization	Includes any mention of senses and methods of observation.	1	0
Preparation	Includes all mention of details for preparing for trip.	0	0
No Answer		4	6
Nothing Else		0	2

Questions eight and nine try to assess the previous information levels of the students in terms of whether they know something already about the centre and where this information comes from.

Question 8:

This question asks the students if they knew something about the Centre before viewing the program.

Answer 8:

Eighteen replied they knew nothing. Six students stated they knew something. Two stated they knew a little.

Question 9:

Students were asked where they learned this information specified in Question 8. From the answers, information was judged (by those replying affirmatively) as anything concerning nature, rather than specific details on the Centre.

Answer 9:

Sixteen had no response. Three replied from the teacher; three replied by visiting or going to the Centre; one replied from my brother; one replied from a film; two answers were categorized as miscellaneous.

Questions ten to fourteen explore the area of visitation, past and expected, to the Centre. In general very few students had visited the Centre but all were eager to visit. Most were eager just to see, observe and enjoy nature in general with no particular emphasis on learning in their statements. There was no particularly important new information which they requested.

Question 10:

Have you already visited the Centre.

Answer 10:

No: 22 ; Yes: 4.

Question 11:

Are you eager to visit the Centre.

Answer 11:

Twenty-six students stated they were eager.

Question 12:

This asked the students why they were anxious to visit the Centre.

Answer 12:

Eighteen replied they were eager to see, observe, enjoy and walk in nature and the outdoors. Some of these could have implied learning although not overtly defining it. Eight specifically referred to learning, discovering and examining nature and/or specific objects in nature.

Question 13 and 14:

Ten students replied yes. Sixteen replied there was nothing. Two were interested in knowing more about animals and one more about nature. Two were interested to know about drinking water on the Mountain. One student wanted to know more about the regulations and another about the cost of maintaining the Mountain. One student wanted to know if diner was going to be eaten on the mountain. And finally one student was interested to know the names of the naturalists.

Conclusion

The pilot study proved very important in validating the various measurement tools for the main experiment. Although only the attitude questionnaire was subjected to major changes in size and content, the other tests and reports were examined for validity and reliability.

Main Experiment

The results of the Pilot Study and the revisions which ensued, set the stage for the main experiment. Two schools scheduled to visit the nature centre were selected for evaluation. School Group A consisted of 54 students in the fifth grade from Lionel Groulx, a suburban south shore school in Longueuil, Quebec. Two classes were randomly assigned to be either a control or an experimental group. School B consisted of 51 students in the fifth grade of an inner city school in Montreal. Two classes from Ecole St. Mathias were randomly assigned as a control and an experimental group.

The same procedures as used in the Pilot Study were completed successfully and the data from the various tests and reports computed. The results are detailed in the next section entitled Results. The full implications of this final evaluation are discussed in the section entitled Discussion.

CHAPTER V

RESULTS

The results of both the statistical and subjective data are presented below in sections listed according to the five measurement forms. All t-tests conducted were two-tailed unless otherwise specified. In considering the pooling of scores of overall knowledge performance from the two experimental schools, a t-test was undertaken and results found to be significantly different at the .05 level. For this reason the scores of like groups were not pooled but analyzed and presented seperately.

Knowledge Test

In the first stage of evaluation the knowledge levels of the two study groups were tested according to the procedure explained in the Methods section. The experimental groups from both schools showed significantly higher knowledge levels than their respective control groups.

School group A: Lionel Groulx had 25 students in the control group and 29 students in the experimental group. Means and standard deviations were as follows:

Group A	Mean Total Scores	Standard Deviations
Experimental	17.17	2.11
Control	11.04	1.51

A t-test undertaken to determine the difference between the two groups yielded a t-value of 12.39, $p<.001$, with the experimental group out-performing the control group.

School group B: Ecole St. Mathias had a control group of 25 students and an experimental group of 26. Means and standard deviations were as follows.

Group B	Mean Total Scores	Standard Deviations
Experimental	16.50	2.19
Control	10.04	1.97

A t-test computed between the scores of both groups gave a t-value of 10.41, $p < .001$. Again the experimental group showed significantly higher scores than the control group.

Attitude Test

The second stage of evaluation involved the measurement of the students' attitudes over a five point scale from strongly agree to strongly disagree. The attitude questionnaire, now consisting of fifteen questions reduced from the original twenty-five questions of the Pilot Study, was completed by the students immediately after the knowledge test. Below are the relevant data for this measure.

Group A	Mean Total Scores	Standard Deviation
Experimental	64.36	6.37
Control	57.96	6.07

A t-test between the two group scores gave a t-value of 3.37, $p < .002$.

Group B	Mean Total Scores	Standard Deviation
Experimental	61.96	4.02
Control	57.82	6.16

A t-value of 2.81, $p < .007$ was computed. In both groups A and B the expressed attitudes of the experimental groups was more desirable than that of the control group.

Information Test

The next step of the evaluation involved the measurement by four naturalist observers of the retained knowledge levels of two control and two experimental groups within each school group. This took place during the field trip with the naturalists rating the number of persons of the group responding correctly to each of nine questions over a scale of four possible percentages.

The means and standard deviations were as follows:

Group A	Mean Total Scores	Standard Deviation
Experimental	3.55	.72
Experimental	2.66	.79
Control	1.88	.99
Control	2.22	.97

The above mean scores represent the mean average total scored by each group over nine questions on a four point scale for each question. A one-tailed t-value of 2.222, $p < .045$ was obtained.

Group B	Mean Total Scores	Standard Deviations
Experimental	2.55	.80
Experimental	2.66	1.06
Control	1.55	1.07
Control	1.22	1.20

For group B a t-value of 6.96, $p < .001$ was found. The experimental groups from both schools were thus found to still have significantly higher knowledge levels than the control groups several days to a week after viewing the audio-visual program.

Because the knowledge and information tests were both measuring the same problem domaine using different methodologies, a high correlation across tests would be expected. A Pearson r between the group means of the two measures yielded a highly significant .90, confirming the anticipated similarities of the tests, as well as supporting content validity.

Behaviour Report Form

Stage four of the evaluation involved the rating by the four naturalist observers of thirty-three behaviour items during the field

trip.

The means and standard deviations are as follows:

Group A	Mean Total Scores	Standard Deviations
Experimental	3.69	.84
Experimental	3.63	.65
Control	2.87	.81
Control	3.27	.71

The above scores represent the mean averages scored by each group as observed by naturalists over 33 behaviour items on a four point percentage of group scale. A significant improvement in behaviour responses was demonstrated by experimental groups with a one-tailed t-value of 2.986, $p < .05$.

Group B	Mean Total Scores	Standard Deviations
Experimental	3.54	.88
Experimental	3.63	.65
Control	3.12	.96
Control	3.84	.44

No significant differences were found between the scores of experimental and control groups in Group B.

Conclusion: Significant results were found for all experimental groups except one. Table represents a summary of test data presented in

TABLE 5

SUMMARY OF TEST GROUP SCORES IN THIS SECTION

Category	Group Type	Test Group 1 Mean Score	Test Group 1 Std. Dev.	Test Group 2 Mean Score	Test Group 2 Std. Dev.
KNOWLEDGE	Experimental	17.1724	2.11	16.5	2.195
	Control	11.04	1.513	10.04	1.979
	t-value		12.39 p<.001		10.41 p<.001
ATTITUDE	Experimental	64.3684	6.379	61.9615	4.025
	Control	57.96	6.072	57.8261	6.169
	t-value		3.37 p<.002		2.81 p<.007
INFORMATION	Experimental 1	3.555	.72648	2.555	.80794
	Experimental 2	2.666	.79057	2.666	1.0606
	Control 1	1.888	.99303	1.555	1.0736
	Control 2	2.222	.97182	1.222	1.20185
	t-value		2.222 p<.045 (one tail)		6.96 p<.001
	r value (between Knowledge and Information		r = .90		
BEHAVIOUR	Experimental 1	3.696	.8472	3.545	.8802
	Experimental 2	3.636	.6527	3.631	.6527
	Control 1	2.878	.8199	3.1212	.9600
	Control 2	3.270	.7190	3.848	.4416
	t-value		2.986 p<.05 (one tail)		

this section by Group.

Student Subjective Questionnaire

The student questionnaire was completed by the experimental groups of Schools A and B after they had finished the knowledge and attitude post-tests. The results for each question are recorded below in summarized form for discussion purposes. The full record of individual statements can be found in Appendix

Questions One to Four indicate the students' appreciation of the program and their preferences or dislikes. In general, all students liked the program. Strong preference is shown for anything to do with animals. Dislikes were few and quite varied with no particular trend appearing.

Question 1:

How did you like the program?

Answer 1:

Reponse	School A	School B
A lot	30	25
A little	0	1
Not at all	0	0

Question 2 and 3:

What did you like the best?

Answer 2 and 3:

See Table below.

Table 6

Summary of Schools' A & B Response to Questions 2 & 3 of Student Questionnaire

	2		3	
Category	School A	School B	School A	School B
Animals	18	18	9	16
Plants	6	3	3	5
Nature	4	2		1
Naturalists			1	3
General Information	2		7	
Slides		1	1	
Miscellaneous			1	

Question 4:

What did you like the least about the program?

Answer 4:

Category	School A	School B
I liked everything	18	7
No reply	5	7
Specific animals	1	4
Miscellaneous other	3	7

Questions five to seven ask the students to list in order the various information they recall by importance. In general most student felt they had learned a good deal. The area of knowledge most statements fell into was Respect which involves regulations and conservation norms. The next category in importance is that of

Information, followed by Preparation and then Sensitization.

Question 5:

Did you learn something new from the program?

Answer 5:

Category	School A	School B
A lot	28	24
A little	2	1
No reply		1

Questions 6 and 7:

What were the most important things you learned?

Answers 6 and 7:

See Table below.

Table 7

Summary of Schools' A and B Response to Questions 6 & 7 of Student Questionnaire

	6a., 6b		6a. 6b.		7	7
Category	School A		School B		School A	School B
Respect	16	13	13	11	9	7
Information	7	8	5	6	9	12
Preparation	4	5	3	3	1	3
Sensitization	2	2	4	6	3	1
No answer.					8	3

Questions eight and nine assess in general terms the preprogram knowledge of students, in relation to the Centre. The majority interpreted the question as knowing something about

nature and replied they knew a little. This information came mainly from school but also from parents and books and other miscellaneous sources as shown below. (See Question 9).

Question 8:

Category	School A	School B
A lot	3	3
A little	19	13
Nothing	7	10

Question 9:

Where did you learn this information?

Answer 9:

Category	School A	School B
School	7	6
Television	1	1
Books	3	2
Parc Safari		2
Other Parks		1
Parents	3	3
Other Audiovisuals		4
With Naturalists	2	
Mont St. Hilaire	1	
No Answer	9	

Questions ten to fourteen examine the past visitation record of students and their expectancy level for their planned visit. The majority were eager to visit the Centre for the first time. It was quite evenly divided between those who were specifically interested in learning, discovering and examining and those who were more generally interested in seeing, walking and enjoying in the outdoors or in nature. The division between the two categories may be unclear in that the students may have different verbal ways of expressing themselves but be interested in enjoying and learning. There is a general emphasis towards students who wish more information concerning animals and plants.

Question 10:

Have you ever visited the Centre?

Answer 10:

Category	School A	School B
Yes	3	1
No	27	25

Question 11:

Are you eager to visit the Centre?

Answer 11:

Category	School A	School B
Yes	30	24
No	0	0
A little		1

Question 12:

Why do you want to visit the Centre?

Answer 12:

Category	School A	School B
To learn, discover and examine.	14	7
To see, observe and walk in the forest, outdoors, etc.	8	12
Don't often have a chance.	3	
To snowshoe	1	
Because I saw the program.		2
Miscellaneous		2

Question 13:

Students were asked to list several things they would like to know about the Centre.

Answer 13:

Replies to question 13: show a strong desire to know more about animals, plants and the naturalists. The table below shows a summarized distribution of answers. Complete individual answers can be found in Appendix C.

Table 8

Distribution of Answers on Desired Information

	1		2		3	
Category	School A	School B	A	B	A	B
Animals	9	7	7	11	6	7
Plants	3	3	5	1	1	1
Naturalists	3	0	2	1	4	1
General Information (Misc.) No answer	4	12	2	3	0	3

CHAPTER VI

DISCUSSION

Introduction

The primary objective of the study was the design and evaluation of an audio-visual presentation. The program was created to change the cognitive and attitudinal levels of students scheduled to visit a Nature Conservation Centre. Current instructional and media related theory and findings were used to design the appropriate presentation.

The evaluation of the audio-visual program measured not only the cognitive and attitudinal levels of the students but also the behavioural dynamics of the field trip. The measurement tools were themselves tested, validated and revised before use in the evaluative data gathering process. For the purposes of discussion therefore interest is in examihig the effectiveness of the program in terms of the possible inferences which can be drawn from the various statistical and subjective data obtained in each domain.

Knowledge Domain

The knowledge levels of students is usually considered the primary indicator of instructional value both in terms of measureability and

validity. The program design incorporates a specific informational domain to be transmitted and since this information is highly measurable (in that the knowledge and information tests are specific to the content), the results would evidence a possible direct relationship between knowledge transmitted and knowledge received. In fact, the results of these tests and subsequent feedback from the subjective questionnaire gave important insights into the effectiveness of the A.V. program.

In both the main experiment and the pilot study the experimental groups showed a significantly higher score than the control groups. The A.V. program was therefore very effective in transmitting its informational content across three schools widely varying in sociogeographic location.

A closer examination of the test scores reveals that the two experimental groups from each of Schools A and B were within 10% of each other. The pilot school experimental group also scored within 10% of the main experiment schools. This would seem to indicate that not only was the program effective but that it achieved the same degree of success in transmitting information to the three different schools which were in very different communities.

The control groups for School A and B also scored within 10% of each other revealing a similar knowledge level for the two schools. The control group from the pilot study however scored 15-20% higher than the above two schools. This difference is probably explained by

the considerable class preparation which had been done by the teacher prior to measurement (see Appendix C). The teacher had extensively prepared the class since September of the previous year. The preparation concentrated on covering various subjects such as air, water, birds, trees and natural processes. As well she had provided the students with information on the Centre, after having visited the Centre and discussed the impending trip with the naturalists. Therefore the higher scores of the pilot study control group were attributed to teacher preparation. At the same time the significantly higher score by the experimental pilot group is further proof of the effectiveness of the A.V. program. Thus, despite extensive teacher preparation, the A.V. program played an important role in improving the informational predisposition of students.

It was noted that several individual item results on the knowledge test pointed to an apparent ineffectiveness in transmitting certain information. For these items consistently low scores were achieved by all groups. Closer examination showed that a probable reason for these results were in the high specificity and/or ambiguity of the multiple choice answers. The former was true for Question No. 12, Number of variety of plants, for which the correct response was a three digit number in a multiple choice format of several three digit numbers. The actual information is presented only once in the program

yet despite this, experimental groups scored higher than control groups and significantly higher in one case. Thus if this specific information content was considered very important to the achievement of the behavioural objectives, repetition of the answer within the program should overcome this apparent ineffectiveness.

A similar low score response was evident for question 16, which required the specification of the use of various senses of the students. In this instance the ambiguity of the multiple choice answers was responsible for the poor scores although experimental groups for both schools achieved significantly better results. This type of answer choice should have been avoided.

The overall significant effectiveness of the program in changing student knowledge levels, far outweights the above two mentioned items. In examining individual question scores for schools A and B the experimental groups for <u>both</u> schools achieved much higher results on five item questions. In addition there were many other items for which either one or the other experimental group realized significantly higher scores. The five questions were:

a) Question 2 — What is the place you are going to visit?

b) Question 5 — Regulations were created at this place to . . . ?

c) Question 11 — Which is an example of an ecological relationship?

d) Question 13 — At this place you are going to visit, your leader will be . . . ?

e) Question 15 — To become a naturalist one must study . . . ?

These five questions reflect information domains which were examined in relation to their implications for behavioural outcomes.

The knowledge level increase was considered important in that the information learned was seen as necessary to the achievement of various behavioural objectives.

Questions 2 and 5 of the knowledge test represented information basic to the development of an understanding of the meaning and objectives of a nature centre. Questions 13 and 15 were seen eliciting information which contributed to the acceptance of and respect for the naturalist as a professional educator. These were also seen as requiring information basic to behaviours appropriate to learning during the field trip.

Question 11, which is concerned with the concept of ecology, is representative of a general comprehension objective. Since the entire field trip day revolves around learning about the interrelationships of the natural world, a minimum comprehension of the concept of ecology is desirable prior to the students' arrival.

The Information Test results, collected as much as a week after the presentation, provided further evidence as to the effectiveness of the A.V. program. This test measured not only the transmitting of information but retention of the same. In most cases significant decrement in performance is observed over a retention interval of more than one day. In this study, the A.V. program was shown between three and six days before the actual visits and testing of students. In that recall in the field trip situation is of primary importance for

achieving behavioural objectives, the significantly higher scores of the experimental groups was considered crucial. As well, the high achievement of experimental groups on the knowledge test was therefore not attributable to the immediate post-test phenomenon. The high retention factor was probably due to a large degree to the redundancy built into the program, especially the effect of review sections. The author had observed that the review sections were very effective in reinforcing correct answers and negating incorrect answers. This served to prevent internalization of incorrect information immediately after a particular section. The knowledge test itself may have served as a reinforcement factor in that students were obliged to relate and recall information.

A correlation test between like group means for Schools A and B scored on the knowledge and information tests yielded an r of .9. Thus not only does the information test results reinforce the apparent effectiveness of information transfer and retention but the high correlation strengthens the argument for reliability and content validity of the measures themselves. Although similar information was covered in both tests, the information test was a measure of group performance as observed by naturalists, in a similar manner to behavioural items, and therefore highly significant in relating information to behaviour.

In addition to these empirical test results in the knowledge

domain the student subjective questionnaire gives some insight into the learning effects of the program as arbitrarily recalled by the students. Almost all students claimed they learned a good deal from the program. For students of Schools A and B stronger recall of information relating to the category of Respect were evident for the first two recall items elicited. (See Appendix C). Only in the case of the third recall did the category of Information equal or surpass the Respect category. Thus the strongest impact made on students seems to be that information which relates to the regulations and conservation norms to be followed on the mountain including respect for the naturalist. It is interesting to note that the pilot study group reported the exact opposite results between Respect and Information. For this group Information items greatly exceeded any other category over the two recalls solicited. Again this difference is probably attributable to the type of preparation this group had received prior to viewing the program. The teacher had briefed the class on regulations, conservation norms and it would almost seem as if the experimental group reacted to the audio-visual program with a positive motivation to learn 'information', the exact predispostition the study is trying to effect for the field trip.

In the Respect category individual answers show strong trends towards recall of the following subjects:

a. Protection of animals; by not hunting, not scaring, not hurting;

not making noise, etc.

b. Respect for Naturalist; by obeying, listening, behaving, following, staying behind, etc.

c. Conservation; keeping the mountain clean, not touching things, not throwing garbage, not picking flowers, not destroying trees, etc.

It seems clear then that the program is achieving its aim in impressing upon the students the importance of the above three concepts and the students are readily accepting this information.

The Information category is the next important recall area and here individual answers show a strong pattern towards the following topics:

a. Insects live under the bark of trees

b. Being able to tell the age of trees

c. Understanding ecology

d. How animals live (both general and specific animals).

e. Recognizing the tracks of animals.

These topics were covered by the live taping of groups discussing these subjects with accompanying pictures. All three experimental groups responded strongly to these particular sequences of information.

The Preparation category had few responses and most were concerned with dressing warmly for the trip. And the Sensitization category had the least recall with the subject of tasting sumac mentionned

several times.

Thus in terms of instructional value from the students vantage point the program strongly presents information concerning respect and conservation, followed by knowledge about animal behaviour, and to a lesser degree information relating to preparation and the use of the senses. The apparent reversal of this order of impact is later revealed by the results of the behavior report form which are discussed later in this section.

Attitude Domain

The evaluation involving the measurement of attitude change amongst experimental and control groups proved the most difficult. Although the author attempted to choose those attitude statements which best reflected the informational content of the program, and best predicted the desirbale behavioural outcomes of the field trip, the attitude items did not have as specific a content domain as the knowledge items.

The results of the main experiment did show however significantly more positive attitudes in favor of the experimental groups. This more positive response is attributed to the knowledge content and affective tone of the A.V. program as the sole independent variable, affecting group results.

In evaluating students' attitudes concern was with both the significant differences among groups and with the relationship between

attitudes and information. An informational basis for attitude implies a processing of information which is seen as affecting a person's attitudes in various ways. According to Fishbein/Ajzen (1975), depending on the effects of new information on prior beliefs, the formation of new beliefs may raise, lower or have no appreciable effect on a person's attitude. Since the control groups scores represent the attitudes of all students prior to viewing the program, the experimental groups' scores represent the change in attitude after viewing the program. The significant change towards more positive attitudes by the experimental groups is especially noticeable for four attitude statements. On examination, each of the four attitude statements reveal varying degrees of observable causation with knowledge, information and questionnaire test results.

The attitude statement which refers to the collection of plants (No. 6) is representative of the informational content of section 1 of the A.V. program which discusses conservation regulations. In that experimental students both expressed a positive attitude toward this topic and performed significantly better on Question 2 and 5 of the knowledge test (also related to conservation), one might infer a causitive relationship between the information content of section 1 and the subsequent attitude improvement.

Two other attitude statements which show significantly improved attitude of experimental students compared to control students, concern

information presented in several sections of the program with respect to behaviour towards animals. The specificity in this instance between attitude statements 9 and 12 and empirical knowledge and information test results is not so clear. However, the more favourable attitudes expressed by experimental groups seems to relate to the recall data of the student questionnaire for which the category of Respect, and within this, the strong trend for protection of animals, was so predominant. Once again a strong link is infered between information and attitude change.

The subject of preparation is contained in the last attitude statement which showed a strong change in student predisposition to behave more positively. However this result does not appear at first hand to have any basis in information test results or the student questionnaire. In the former case this is due to the lack of a question which reports this topic. However, the subject of eating a proper breakfast (Attitude question 15), is thorbughly covered in section five of the A.V. program. Thus it is entirely probably that the increase in students' intention to eat a good breafast is due to the informational content of this section.

Generally then, results indicate that the content of the program is affecting the attitudes of students to significantly predispose them to act in certain ways. The actual results of this predisposition change are discussed in the following section on behaviour.

Behaviour Domain

Our definition of attitude implies a strong link between attitude and behaviour. According to Fishbein/Ajzen (1975) despite repeated failures to demonstrate a strong relationship between attitude and behaviour, the basic assumption that human behaviour is determined by attitude continues to persist. Title and Hill (1967) state that the magnitude of the relationship varies with the degree of correspondance between levels of attitudinal-behavioural specificity. Thus a low empirical relation between the two domains simply points to a lack of a one to one relationship. This statement is significant in terms of both the informational and attitudinal results and their specific relationship with the behaviour report form response.

Two points should be mentionned from the start in discussing the results of behaviour evaluation. Behaviour itself is very difficult to measure over the short period of time during which the study took place. As well, small sample sizes compounded this difficulty. Nevertheless, the experimental groups of School A showed significantly more positive behaviour over the target behaviour objectives, while School B did not show any overall effects.

However when the five behavioural sections were examined separately, three sections for School A and one section for School B showed higher scores favouring experimental groups for sections 2, Interest in Learning, section 4, Use of Senses, and section 5,

Preparation. For School B, the experimental group demonstrated better behaviour for section 5, Preparation, only.

The behaviour results can be discussed only in a very general sense in relation to attitude and information results. There seems to be very little one to one correspondance between individual attitude statements and/or knowledge domain items which showed strong positive change in favour of experimental groups, and behaviour report form sections which also indicated more positive behaviour by these same groups. Therefore the 'other variables' approach put forth by Fishbein/Ajzen (1975) which implies that attitude is only one of a number of variables that influence behaviour, would seem a more logical basis for discussion.

The one behaviour category which demonstrates significantly improved behaviour by experimental groups for both schools is precisely the one which shows a high specificity to Attitude statement 15 (Eating a proper breakfast), for which experimental groups scored significantly better, and at the same time the one least likely to be affected by other variables. Thus for section 5, Preparation, of the behaviour report form, the success of experimental groups is attributed to the more positive predisposition resulting from viewing of the A.V. program. The fact that observation of behaviour items relevant to this section were measureable as students arrived in the parking lot, preventing most moderating factors from intervening, may

also explain the significant differences between experimental and control groups.

The 'other variables' which were possibly active during the field trip as either moderating or independent factors, include other attitudes, competing motives, verbal, intellectual and social abilities, individual differences, actual or considered presence of other people, normative prescriptions of proper behaviour, alternative behaviours available, expected and/or actual consequences of avrious acts, and unforseen extraneous events. Certainly the presence of people in the form of teachers and/or parents would tend to enforce proper behaviour, by reinforcing the consequences of improper actions and limiting alternative behaviours. It was noted that for School B all groups had teachers accompanying each group and for School A either a teacher or a parent accompanied each group. This may explain the lack of significant differences between groups for categories 1 and 3 of the behaviour report form for which positive behaviour was recorded for all groups. Category 1 concerns the observable respect shown for conservation norms during the field trip and category 3 involves the respect shown for the naturalist. Both these could have been moderated by the presence of adults. In addition the naturalists functionning in their normal capacity as leader clearly explain all the regulations and procedures for the day to the students removing some of the informational difference between control and

experimental groups. The significant differences between these two groups for information and attitudes concerning respect for regulations and the naturalist, have already been discussed thus the reversal of these findings in terms of differences in behaviour must be explained in terms of moderating variables.

Category 4, which analyzes the use of the senses is not tested for extensively in either the knowledge or attitude tests, nor does it appear noticeably in the student questionnaire. Thus the significantly more positive behaviour recorded for the experimental groups of School A cannot be directly linked to empirical results for the knowledge or attitude domain. It would appear however from the results that the presentation of modelling sequences in section 4 of the program, depicting groups using their various senses, has had a positive effect on experimental groups. In terms of tasting plants, touching natural objects, and listening for sounds, the program seems to have overcome the normative prescriptions of behaviour by showing peers behaving in appropriate ways. The novelty effect of these actions may explain the shift in behaviour since new information not previously available to students is presented by other students.

Category 2 of the Behaviour Report From is the last behaviour area which shows more positve behaviour for the experimental group of School A. The behaviour items in this category measured the Interest in learning demonstrated by the groups during the field trip, and examined the types of discovery, observation and discussion

practiced by students. Whereas there are no particularly significant relationships apparent between empirical results on related knowledge and attitude domain test results, the student questionnaire does give some insight into this stronger interest as observed by naturalists. The majority response on the questionnaire by experimental groups showed a strong enthusiasm to visit the Centre to learn, discover and examine nature. The balance indicated a general desire to observe and walk in the outdoors which could easily be transfered into positive interest in learning by a naturalist experienced in motivating and stimulating groups. In response to a question asking students to list what they were most interested in learning about, students showed a strong desire to know more about animals over three choices elicited. This strong interest is probably due to the predominance of visuals and orals within the program depicting animals on the mountain.

The overall results of the evaluation of the program indicate that the significantly higher scores by experimental groups in the knowledge and information measures resulted in a similar achievement for the attitude test, and cause more positive behaviours for at least one of the schools. The fact that both control and experimental groups scored very well on the behaviour report form for the other school, preventing any significant difference, is attributed to other variables as discussed.

Having established the overall effectiveness of the audio-visual program with the four measurement tools an analysis was completed examining to what extent the five primary objectives were realized. The five objectives are listed below and discussed seperately relative to the knowledge, attitude and behavioural domain components which best measure their achievement.

Achievement of Objectives

Within the context of instructional design a principle means of evaluation of an instructional event is to determine whether the behavioural objectives have been accomplished. It should be noted that in general all groups studied demonstrated a higher degree of achievement as compared to the average groups experienced by naturalists at the Centre. This difference may be partly attributed to the abnormally high presence of teachers as a moderating influence.

For objectives specifying Interest in Learning (No. 2), Use of Senses (No. 4), and Preparation (No. 5), the following results confirm achievement of the behavioural objectives.

Behavioural Objective 2 - Interest in Learning.

Experimental groups show relatively higher scores for questions 4, Learn About Nature and question 8, Observe and Discover Nature, but no significant differences relative to control groups on knowledge

test. Higher relative differences were also found in favour of experimental groups for question 6, Reason for Visit, on the Information test, as they were for Attitude Statement 4, Learn About Plants and Attitude Statement 7, Hikes are for Fun. For the Behaviour items, School A showed significantly higher scores for Section 2, Interest in Learning which corresponds with this objective.

Behavioural Objective 4 - Use of Senses.

Test scores for knowledge showed significant differences favoring Experimental groups for Question 16, All your Senses. There were no questions on the Information test relating to this objective. Statement 12, Noise to Scare Animals relates indirectly to this objective and experimental groups from both schools achieved significantly higher scores. School Group A realized higher significant scores by experimental groups on Section 4, Use of the Senses of the Behaviour Report Form. School Group B showed relatively higher scores by Experimental Groups.

Behavioural Objective 5 - Preparation.

Experimental groups for Schools A and B achieved relatively favourable differences for Question 17, Prevent Cold and 18, Dress for Warmth. The same results were true for Question 9, Good Breakfast, on the Information test. For Attitude statement 15, Eating a Good

Breakfast Keeps You Warmer, experimental groups scored higher significant scores compared to control groups. Question 13 gave only relatively higher scores for experimental groups. However on the Behaviour Report Form experimental groups realized more positive significant behaviour for Section 5, Preparation, corresponding with this behavioural objective.

Behavioural Objective 1 - Understanding of Nature Centre.

Experimental groups scored significant differences for Question 2 Reserve for Plants and Animals and Question 5, Protection of Plants and Animals of the knowledge test. Higher relative differences were also realized for experimental groups for Question 1, Mont St. Hilaire Nature Conservation Centre, Question 4, Protection of Fauna and Flora, Question 6, Regulation for Fires, Question 7, Regulation on Collecting Plants. Higher relative scores were shown by experimental groups for Information test question 1 - Name of Centre, 2 - Purpose of Centre, 3 - Knowledge of Regulations, 4 - Understand Need for Regulations, and 5 - Ownership of Centre. Attitude statement scores revealed significantly more positive attitudes for 6 - Collecting Plants, 9 - Running After Animals, and 12 - Making Noise to Scare Animals but only relatively higher scores for 1 - Hunt Animals, 5 - Protect Forest, 8 - Remove Bark, and 10 - Respect for Others.

Behavioural Objective 3 - Respect for Naturalist

Experimental groups achieved significantly higher results for Question 13 - Your Leader Is, and Question 18 - Naturalist Studies Ecology on the knowledge test and relatively better results for Ques-

tion 9 - Naturalists Teach Others. Question 8 - Define a Naturalist, on the Information Test showed significant relative differences in favour of experimental groups. Attitude statements 2 - Naturalists are Boring, and 11 - Teach Like a Naturalist revealed no relative differences.

Behavioural Objectives 1, Understanding of Nature Centre and 3, Respect for Naturalist, were realized but results of behaviour measurement revealed no significant differences between groups. Variables such as naturalist behaviour, teacher presence, and other moderating variables probably affected this outcome. Significant differences were found for questions and statements on the knowledge and attitude domains favouring experimental groups.

CHAPTER VII

SUMMARY AND IMPLICATIONS

An audio-visual program designed and used as a form of class preparation for nature education field trips did have significantly positive effects. The desirable change in students' predispositions was measured by evaluating the domains of knowledge and attitude using proven, reliable measures. The design of the program proved successful in increasing to a significant degree the knowledge and attitudinal levels of experimental groups. This was especially apparent for respect for conservation norms and naturalists, as well as for interest in learning more about nature. Subsequent observation by naturalists during the field trip of specified behaviour items provided valid data showing improved behaviour on the part of experimental students. Thus for those students having viewed the program there appeared to be a causal relationship between the increase in knowledge levels, the change in attitude towards appropriate behaviour, and actual overt behaviour. Moderating variables did seem to play an important role in raising control group levels for certain of the behaviour measures to experimental group levels. The successful realization of all behavioural objectives further reinforced the conclusion that the audio-visual presentation was an effective

instrument for improving nature education field trips. Implications for further design and research in the field of nature education are suggested and strengthened by this result.

The findings of this study appear useful for designing additional pre-trip programs, developing other forms of automatic instruction for classroom use, evaluating class and teacher readiness, evaluating and improving field trip dynamics, and improving interpretation programs in general.

The characteristics of the presentation were an important factor in the final outcomes of the experiment. The program design was effective over varying sociogeographic communities. Further experimentation could be undertaken to examine the effects different presentation designs have on groups. The slide-tape format as a low cost and practical media for classroom instruction, was effective in holding interest, transmitting information, motivating response, shaping attitudes, and influencing behaviour by using current findings in instructional research. Programs with similar objectives could be developed for other target groups that frequent the Centre. Different groups view field trips with different attitudes toward learning. These would include different scholastic levels, teachers, handicapped and old age groups, the general public, extra-curricular and school groups such as playground and scouting, or independent groups. These latter are especially important as a target audience as their numbers

and impact on the mountain have been observed as damaging. Such groups could be obligated to view a preparatory audio-visual program as conditional to reserving a field trip day.

As well additional programs for teacher use in the classroom could be developed for pre- and post-trip use. In other words, the availability of automated audio-visual programs could serve as useful resources for the teacher in carrying on a continuing nature education program in and around the school. The objectives of such programs would aim at motivating and orienting the teacher while providing essential resource materials for their own independent programs. This type of continuous environmental education is precisely what the Nature Centre encourages with its teacher training program. The use of Mont St. Hilaire or similar conservation areas for one day field trips should be viewed as one stage in an on-going program. Until recently such trips have often been regarded by school boards and many teachers as extra-curricular, either a day off from school, or an isolated event outside the normal curriculum of students. Possibly, audio-visual presentations designed with the objective of informing administrators and teachers about the many possibilities for outdoor education could substantially increase the quality of teacher activity in this area. The author would like to point out here that in his experience there will never be a satisfactory substitute for live presentations by nature interpreters or educators who are capable of stimulating audiences and responding to

feedback, however the limitations of time, personnel and finance associated with an increasing demand for services, often make this physical presence impossible. Whenever possible, however, this personal contact should be encouraged. The audio-visual animator in the form of a nature interpreter or specialist should also be encouraged to be physically present as often as possible when presentations are made. This will provide valuable feedback as to the technical and impact effectiveness of presentations, on varying audiences.

In terms of evaluating teacher and class readiness for the field trips further development and use of objective and subjective questionnaires could be useful. Certainly they will serve to motivate teachers to take an interest in correct student preparation while providing interesting data for naturalists as to the level and interests of student groups. These tests could be further refined and used in the form of a workbook package accompanying the program as an integral part of class preparation. Pictures and diagrams could be added to illustrate and reinforce concepts.

With reference to observing field trip dynamics and evaluating student behaviour and naturalist proficiency, the use of the behaviour report form or a similar type of measure is definitely worth considering. The further development and refinement of this type of measure for observing, recording and analyzing field trips is highly

recommended. Supervising and/or independent observers should be used for the testing and improvement of this type of rating device. In addition training nature interpreters to continuously monitor and adapt to these various behaviour items as frames of reference should ensure more positive learning and affective outcomes on field trips.

This study has pointed out some of the ways various moderating factors can affect field trip behaviour despite effective audio-visual preparation. The individual idiosyncracies of each nature educator, their ability to interest, inform and control the group, would seem a most important consideration for study in a long term approach to improving field trip outcomes. The moderating behaviour of naturalists, and other adults such as teachers or parents could be examined using an adaptation of the behaviour report form which could include some 'other person' interaction items. Whether or not a teacher accompanied the group, and varying teacher attitudes have been noted to influence behaviour on field trips.

The overall aim of this study has been to improve the quality of the nature education program in general. Pre-trip preparation is seen as one form of contact which can be effective in influencing outcomes. Other factors have been identified in terms of evaluating, upgrading and further evolving nature education programs. As time and finance are made available the various suggestions put forth in this study should be undertaken as priorities dictate.

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APPENDIX A

TEACHERS' INSTRUCTIONS

INTRODUCTION

Attention Getter for Teacher

Speaker: A Naturalist

Bonjour! Nous sommes heureux de votre désir d'emmener vos élèves au Centre de Nature du Mont St-Hilaire. Nous pensons comme vous qu'il est très important que l'enfant connaisse et apprécie notre patrimoine naturel. En le connaissant et en l'aimant, il voudra sans doute le préserver. Cette visite lui ouvrira les yeux sur nombre de phénomènes qui restent cachés aux yeux du profane. Le succès de cette journée repose d'abord sur le type de préparation que vous les professeurs serez à même de faire en classe avant la visite. Cette première étape sera déterminante sur leur disposition à apprendre et sur les bienfaits qu'ils peuvent tirer de la randonnée. On ne s'attend pas à ce qu'ils en connaissent beaucoup dès leur arrivee. Il n'est d'ailleurs pas très important qu'ils aient acquis beaucoup de connaissances théoriques avant la visite. Par contre, nous voulons qu'ils réalisent le but de leur visite, qu'ils soient motivés à apprendre, et qu'ils sachent comment se comporter pendant la journée. Ce programme a été mis à votre disposition pour vous aider à mieux préparer votre classe.

De leur côté, les naturalistes feront tout leur possible pour rendre la journée instructive et agréable. De votre côté, nous comptons sur votre préparation en classe et sur la discipline que vous voudrez bien assurer pendant la randonnée.

Les revisions qui accompagnent chaque section sont particulièrement importantes pour l'assimilation du matériel déjà vu. Il en est de même des questionnaires qui vous permettront d'évaluer le degré de compréhension de l'élève. Le programme devrait être vu au moins une fois avant la visite, mais il serait préférable de le passer plusieurs fois, afin d'accroître son efficacité. N'oubliez pas de prendre connaissance des instructions qui accompagnent le programme, avant de le présenter aux élèves.

Alors, bonjour, et à la prochaine!

MODE D'OPERATION DU PROGRAMME AUDIO-VISUEL

Afin d'obtenir les meilleurs résultats possibles, suivez les indications ci-dessous:

1. Lisez la documentation ci-attachée comprenant des informations, les règlements du Centre de Conservation de la Nature, etc.
2. Ecoutez attentivement l'introduction enregistrée au magnétophone.
3. Visionnez le programme en entier au moins une fois AVANT de le présenter à votre classe.
4. Préparez mentalement les sections de "revision"; vous serez ainsi prêts à stimuler chez vos élèves les bonnes réponses.
5. Vérifiez toute information dont vous prévoyez avoir besoin pour répondre aux questions.
6. Montrez le programme section par section et faites la revision de celle-ci avant d'en entamer une autre.
7. Posez les questions aux élèves (voir questionnaire).
8. Une fois terminés, faites une évaluation des questionnaires et corrigez les inepties que vous y trouverez en en discutant avec l'ensemble des élèves.
9. Présentez le programme une deuxième fois si vous le jugez nécessaire.
10. Rappelez-vous que les naturalistes sont des professionnels hautement qualifiés qui peuvent apporter beaucoup à vos élèves si ces derniers sont prêts à assimiler des informations.

Le programme magnétophone/diapositives

Ce programme magnétophone/diapositives devrait être utilisé simultanément avec votre propre préparation à la visite de votre classe au Centre.

Pour la présentation du programme, il vous faudra:

1. Une salle sombre.
2. Un projecteur de diapositives du type "Caroussel"
3. Un magnétophone à ruban (bobine à bobine)
4. Un écran.

1. Une salle sombre est nécessaire si l'on veut que la qualité des images soit efficace. Beaucoup de temps et d'énergie ont été dépensés pour arriver à obtenir des photographies de la faune, etc., et si de la lumière pénètre dans la salle, la beauté et la qualité des diapositives laisseront à désirer, et les détails de la photographie seront nuls.

2. Les diapositives sont en ordre dans le "Caroussel" et numérotées de 1 à 140. Vu leur extrême fragilite, elles ne doivent pas être enlevées du compartiment. Si par erreur elles étaient ainsi enlevees, elles devraient être remises en ordre, et une note expliquant l'incident devrait être laissée dans la boîte du compartiment. Cela nous permettra de vérifier si les diapositives sont bien en ordre avant de transmettre le programme à une autre école.

   Quand vous aurez terminé le visionnement du programme, retirez du projecteur le compartiment. Laissez le projecteur et l'éventail en march durant plusieurs minutes (lampe éteinte) pour refroidir. Attention de ne pas brûler ou égratigner les diapositives. Si une diapositive s'accroche durant la présentation du programme, allez à la suivante si possible mais attendez le son (beep) avant de changer l'image.
   Rappelez-vous bien que les diapositives changent en coordination avec les "beep" du magnétophone.

3. Le magnétophone devrait être place derrière l'écran de manière à ce que le son semble venir d'en avant. Chaque fois que le "beep" est entendu, vous devez passer à la prochaine diapositive.

   A la fin de chaque section annoncée par le magnétophone, il faut arrêter le ruban (la bande). Une fois la revision terminée, remettez le magnétophone en march. Les sons "beep" sur ruban sont synchronisés avec exactitude avec les diapositives. Si vous manquez un "beep" tout le programme sera changé.

   A la fin de chaque section vous pouvez vous assurer de la bonne synchronisation en vous référant à la charte "son/diapo" qui accompagne le programme.

4. Il a été prouvé par des recherches que la présentation répéteé d'un programme résulte en une amélioration de la compréhension des élèves.

5. Ce programme a été offert à une variété d'écoles, et a été jugé efficace dans la préparation de classes à une visite au Centre de Nature.

6. Nous apprécierions tout commentaire, critique et suggestion qui pourrait contribuer à l'amélioration de ce programme.

Ecrivez au Centre de Conservation de la Nature du Mont St-Hilaire

Compétence de Robert Manus
422 Rue des Moulins
Mont St-Hilaire
Qué. J0L 1L0

MERCI.

CENTRE DE CONSERVATION DE LA NATURE DU MONT ST-HILAIRE
422 Rue des Moulins, Mont St-Hilaire, P.Q. J0L 1L0
Tel: 467-1755

RECOMMENDATIONS AUX RESPONSABLES

DES VISITES SCOLAIRES ET GROUPES ORGANISES

Ces règlements sont etablis pour le bien etre des visiteurs. Nous comptons sur la cooperation de tout le monde. Bonne Randonnée:

Le Mont St-Hilaire est une forêt a l'état sauvage, la topographie y est très accidentée. Son utilisation par le public comporte certains dangers. Vous l'utilisez donc à vos risques, c.f. carte et règlements.

RESERVATIONS DE GROUPES:

1. Les excursions doivent être orientées vers l'écologie et les sciences de la nature, et être préparées convenablement en class.

2. Pour les visites de groupes, en raison de la popularité du Centre de Nature durant le printemps et l'été, il faut réserver au moins un mois à l'avance. S.V.P. téléphonez pendant les heures de bureau a 467-1755 ou 467-4010. LES GROUPES QUI SE PRESENTERONT SANS RESERVATION POURRONT ETRE REFUSES A L'ENTREE.

3. Le Centre ne recoit pas plus de 300 étudiants par jour, chaque institution ou organisme étant limité à 60.

4. Une école donnée ne pourra réserver plus de deux journées consécutives par mois, avec des groupes ne dépassant pas 60 étudiants par jour. (Pour permettre à plus d'écoles et d'institutions de jouir de la montagne.)

5. Durant l'année scolaire, la priorité sera accordée aux groupes de sixième année et du secondaire I et II.

6. L'automne et l'hiver, les groupes scolaires ne sont pas admis le lundi.

7. ANNULATION DES VISITES: appelez à 8:30 hres la journee même de votre visite.

INTERPRETATION DE LA NATURE ET ACTIVITES DIRIGEES

Interprétation de la nature: L'interprétation de la nature est l'étincelle ou la flamme d'enthousiasme qui transforme la froideur des faits scientifiques en une ralité vivante.

1. Sur demande et moyennant certains frais, nous fournirons un naturaliste compétant par 15 étudiants. Un interprète et son groupe de 15 circulent indépendamment comme une unité autonome selon le trajet choisi.

2. Les groupes non accompagnés d'un naturaliste doivent separtager en sous-groupes de 15, chaque sous-groupe étant sous la responsabilité d'un enseignant qualifié dans les sciences de la nature. Il est recommandé que chaque sous-groupe de 15 circule indépendamment. Le Centre accorde la préférence aux groupes qui retiennent les services d'un naturaliste.

3. Les groupes indépendants (qui viennent sans avoir recours a nos services de naturalistes spécialises en interprétation de la nature), devront remplir un formulaire décrivant le but de leur visite et le programme détaillé de leurs activités. Ce formulaire leur sera expédié immédiatement après qu'ils auront fait une réservation et devrait nous etre posté le plus rapidement possible avant leur visite.

ORGANISATION PRATIQUE:

A PROSCRIRE EN TOUT TEMPS: Chaussures à plateforme, canifs, radio-transistors, contenants de vitre, sac à lunch en papier. En hiver, les bottes cosaques (moulantes) de dames sont à déconseiller fortement.

1. Chacun doit apporter un lunch individuel dans un sac à bandouillère de façon à avoir les mains libres. Collation: chocolat, fruits secs, fruits frais, fromage...

2. Equipement: - sacs de plastique
   - insecticide (en juin surtout)
   - carnet de notes et crayon
   - gourde si désirée

3. Vêtements: Il faut tenir compte du climat plus frais sur la montagne et prévoir les intempéries selon la saison:

Printemps & Automne:
- imperméable a capuchon
- chaussures de marche ou bottes
- chandail
- coupe-vent leger

Hiver:
- manteau chaud ou anorak
- tuque
- mitaines doublées
- foulard
- deux paires de bas dont une paire de bas de laine
- bottes chaudes

REGLEMENTS:

1. Tous les véhicules doivent rester au stationnement. C'est là que se fait le départ pour les sentiers. Aucun véhicule ne doit monter vers le lac sans permission spéciale.

2. En raison du danger d'incendie de forêt, il n'est pas permis de fumer à l'intérieur de la montagne sauf au terrain de stationnement et près du monument Gault au lac Hertel.

3. Aucun déchet ne doit être laissé sur les sentiers ou sur les sommets. Il n'y a pas de poubelles sur les sommets en raison de la distance et du manque de personnel pour les vider régulièrement. Il faut donc raporter les déchets à la poubelle la plus proche au retour.

4. Certains types d'observations impliquent une modification de l'habitat, par exemple: étude des organismes du bois pourri (souches et troncs d'arbres morts), profils de sol, étude des organismes des ruisseaux. Ces types de travaux pratiques doivent être entrepris uniquement après consultation de notre personnel et dans une zone désignée. Enfin, le terrain doit être remis dans son état initial.

5. Collection et échantillonnage de plantes et d'animaux. Il n'est pas permis de faire de collection de plantes ni d'animaux vivants. On ne doit pas molester les animaux.

6. Nous demandons aux professeurs ou responsables de groupes d'empêcher les étudiants de manipuler, capturer, ou simplement de jouer avec les têtards et les grenouilles dans le lac Hertel.

7. Le Mont St-Hilaire est un Centre de Conservation de la Nature et un sanctuaire. Nous recommandons aux professeurs de s'abstenir de toute activité de terrain de jeux, ainsi que de tout bruit excessif.

8. Les bains de pieds sont interdits au lac Hertel étant donné que celui-ci est un réservoir d'eau potable.

9. Il y a un DANGER éminent le long du ruisseau traversant la terrasse au lac Hertel, surtout pres de la bâtisse de la régie des eaux. S.V.P. aucune admission.

10. En mémoire du Brigadier Hamilton Gault, bienfaiteur qui a légué le domaine en héritage pour la jouissance des visiteurs, nous demandons à ce que son nomument près du lac soit respecte.

11. S.V.P. ne touchez pas ou ne dérangez aucunement l'équipement qui sert à la recherche (marqueurs, signes, trappes, etc...).

12. Il est bien entendu que l'accès a la réserve biologique est absolument interdit.

RESPONSABILITE:

Responsabilitié de Centre de Nature et du Domaine Gault (Université McGill):

Le Centre de Nature et l'Université McGill ne sont responsables des pertes dommages et accidents. Entre autres, nous portons a votre attention les trois points suivants:

Responsabilité de l'institution scolaire et des enseignants

a. Le responsable du groupe doit éviter la dispersion de son groupe en raison de la possibilité de s'égarer et de l'existence de falaises escarpées et dangeureuses.

b. Vu que les activités du Centre de Nature se font a l'extérieur:

En été, en cas de mauvais temps subit, le seul abri disponible peut recevoir 60 étudiants au maximum. Toutefois, plusieurs centaines d'étudiants peuvent fréquenter la montagne au meme moment. Il importe aussi à tenir compte des distances a parcourir.

En hiver, la cabane d'information ne peut recevoir que 30 étudiants à la fois. Les groupes sous notre direction ont la priorité.

c. Les chefs de groupe (et l'institution ou l'organisme qu'ils représentent) seront tenus responsables des dommages causés au Domaine Gault et aux propriétés privées adjacentes et des dérangements occasionnés à ceux qui y habitent.

REVUE DE L'ETUDIANT

Instructions: A être utilisé à la suite de CHAQUE section du programme audio-visuel. Le professeur doit s'assurer que TOUS LES ENFANTS comprennet bien une section avant d'en entamer une autre. Le professeur demande à la classe de repondre ENSEMBLE d'abord, et ensuite pose les questions individuellement.

Section 1. But: Comprendre ce qu'est le Centre

L'endroit que vous allez visiter est:
1. Mont St-Hilaire
2. Le Centre de Conservation de la Nature du Mont St-Hilaire

La Direction du Centre est responsable pour..... L'opération et la protection du Centre de Nature.

Les naturalistes aident à protéger le Centre _____
Comment? _____ En enseignant aux autres des choses concernant la nature.

Le Centre de Nature est un environnement naturel où par-dessus tout sont protégés_____ Les animaux et les plantes.

Les personnes qui visitent le Centre viennent pour _____
Se détendre et apprendre des choses concernant la nature.

Les règlements ont été mis en vigueur pour _____
Protéger la faune et la flore (les animaux et les plantes) du Centre.

Section II. But: Comprendre pourquoi ils viennent

Votre classe vient au Centre pour _____
Observer et apprendre.

Qu'est-ce que nous allons étudier? _____
L'ecologie du Centre de Nature.

Ecologie signigie_____
l'étude des relations entre les choses vivantes et les choses non vivantes dans la nature.

Un exemple d'une relation écologique: _____
Le vinaigrier et un gros-bec.

Une façon d'apprendre l'écologie au plein air est _____
La découverte et l'observation silencieuse au plein air.

Section III. But: Comprendre le rôle du naturaliste

Quand vous viendrez au Centre de Nature, votre chef et votre enseignant sera un _____. Naturaliste

Un naturaliste est une personne qui a étudié _____.
L'ecologie

Le naturaliste vous guidera le long des sentiers et vous _____.
Aidera à observer et à apprendre.

Il vous demandera de suivre par derrière et d'obéir aux _____.
Règles de sécurité et de conservation.

Quand vous allez en randonnée avec un naturaliste, vous devriez _____.

1. L'écouter surtout
2. Lui poser des questions à propos des choses intéressantes que vous observez.
3. Obéir à ses demandes.

Section IV. BUT: Comprendre la nécessité d'utiliser tous les sens à la demande du naturaliste.

Le naturaliste vous montrera comment apprendre _____.
En utilisant tous vos sens

Le renard, par exemple, utilise son _____
Nez.
Pour _____
Renifler et trouver ainsi des aliments.

Le pic chevelu, lui, utilise son _____
Bec
Pour _____
Trouver des insectes.

Le naturaliste va vous faire_____
Goûter
Sentir
Toucher
Ecouter

Section V. But: Comprendre la nécessité de se bien préparer.

Que devons-nous faire AVANT d'aller au Mont St-Hilaire?_____
(a) S'habiller chaudement
(b) Manger un déjeuner bon ET nourrissant.
(c) S'apporter un lunch bon ET nourrissant.
(d) Vous préparer à suivre et à écouter le naturaliste.

APPENDIX B

TESTS AND QUESTIONNAIRES

KNOWLEDGE TEST

Nom _____

Avez-vous vu le programme audio-visuel? Oui Non

Ce test doit être complété et par le groupe dit "contrôle" et par le groupe dit "expérimental" après que ce dernier aura visionné le programme audio-visuel. Le professeur lira oralement chaque question à la classe et lui donnera 30 secondes pour répondre à chaque question.

Les étudieants n'ont pas besoin d'indiquer leur nom sur aucun des tests; cependant les tests respectifs de chacun des deux groupes doivent être gardés séparément.

Il doit y avoir ni bavardage ni discussion entre les étudiants. Un numéro SEULEMENT doit être encerclé pour chaque question. Aucune discussion ne devrait être entamée après que le test ait été terminé; le professeur devrait passer immediatément à un autre sujet. Aucune note ou point n'est donné pour ce test; sil l'élève n'est pas certain de la bonne réponse il devrait quand même en encercler une selon son jugement.

Première partie: Connaissances

1. Votre classe se prépare à aller visiter:
   1) Le Mont St-Hilaire
   2) La Réserve Parc & Forêt du Mont St-Hilaire
   3) Le Centre de Conservation de la Nature du Mont St-Hilaire

2. Cet endroit que vous allez visiter est:
   1) Un parc safari
   2) Un terrain de jeux
   3) Une réserve pour plantes et animaux

3. La Direction de cet endroit a la responsabilité:
   1) d'organiser des piques-niques
   2) de planter des arbres et de nourrir les animaux
   3) de protéger la faune et la flore de ce territoire

4. Des groupes viennet à cet endroit afin de:
   1) Faire une collection de plantes
   2) Chasser et tendre des pièges
   3) Apprendre à connaître la nature

5. Des règlements ont été mis en vigueur à cet endroit
   1) Pour protéger les plantes et les animaux
   2) Pour protéger les personnes contre les animaux
   3) Pour encourager le monde à utiliser cet endroit

6. Un des règlements de cet endroit exige que:
   1) l'on ne marche pas sur le gazon
   2) l'on n'amène pas son chien sans laisse
   3) l'on ne fume pas et que l'on n'allume pas de feu

7. Un autre des règlements demande que:
   1) Les motos-neiges soient utilisées sur les pistes seulement
   2) La pêche soit permise sur glace seulement ou à partir d'une embarcation
   3) L'on ne cueille jamais de plantes our de parties de plantes vivantes.

8. La principale raison de votre visite à cet endroit est:
   1) d'escalader la montagne
   2) d'apprendre à aller en raquettes
   3) d'observer et de découvrir la nature

9. Les naturalistes sont des personnes qui:
   1) mangent des aliments naturels
   2) construisent et aménagent des sentiers
   3) enseignent aux autres des choses concernant la nature

10. L'écologie est la science des relations entre:
    1) l'intérieur de le plein air
    2) la pollution et la conservation
    3) les choses vivantes et les choses non vivantes

11. Un example de relation écologique est:
    1) un renard et un raisin
    2) le vinaigrier et les gros-becs
    3) le brouillard et les pesticides

12. Le nombre des différentes variétés de plantes au Mont St-Hilaire est:
    1) environ 150
    2) environ 300
    3) au-delà de 500

13. A cet endroit que vous allez visiter votre chef sera un:
    1) guide
    2) naturaliste
    3) étudiant universitaire

14. A cet endroit vous trouverez:
    1) des singes et des lions
    2) des chevaux et des vaches
    3) des renards et des lapins

15. Pour devenir naturaliste il faut étudier:
    1) l'écologie
    2) la pédagogie
    3) la naturologie

16. Pour apprendre au plein air, il vous faut utiliser:
    1) vos yeux
    2) tous vos sens
    3) vos yeux, votre nez et vos oreilles

17. Quand vous visitez cet endroit en hiver, vous devez vous équipper de manière á:
    1) ne pas avoir froid
    2) pouvoir beaucoup manger
    3) pouvoir marcher une longue distance

18. Un lapin n'a pas froid en hiver parce que:
    1) il devient blanc
    2) il a de la fourrure
    3) il mange beaucoup de carottes

19. On utilise des raquettes en hiver:
    1) pour s'amuser
    2) pour faire comme les Indiens
    3) pour rester à la surface de la neige

ATTITUDE TEST

Deuxième partie: Attitude

Nom: Date:

Ecole: Avez-vous vu le programme audio-visuel? Oui Non

Professeur:

Ce questionnaire n'est pas un examen. Il n'y a pas de bonne ou de mauvaise réponse. Répondez à chaque énoncé selon ce que VOUS pensez. Marquez d'une crois (X) la case appropriée après avoir décidé laquelle répond le mieux à votre opinion personnelle.

	Totalement d'accord	D'accord	Sans commentaires	En désaccord	Totalement en désaccord
1. Je pense que les animaux sauvages devraient être chassés vu qu'ils sont dangereux.					
2. Je trouve les randonnées dans la nature ennuyantes s'il faut suivre un guide toute la journée.					
3. J'ai peur quand j'entends des bruits dans le bois.					
4. Je ne trouve pas cela très intéressant d'apprendre des choses à propos des plantes.					

Attitude test: (Con'd)

	Totalement d'accord	D'accord	Sans commentaires	En désaccord	Totalement en désaccord
5. Je pense qu'une forêt devrait être protégée pour conserve sa beauté.					
6. Quand j'irai au Mont St-Hilaire je cueillerai probablement des plantes.					
7. Je pense que les randonnées dans la nature sont tout d'abord pour nous amuser.					
8. Je pense qu'il serait amusant d'arracher l'écorce des arbres.					
9. Si je vois un écureuil je courrai probablement après pour le voir de plus près.					
10. Je pense que je devrais être tranquille dans la forêt pour ne pas déranger les autres.					
11. J'aimerais être un naturaliste pour pouvoir enseigner aux autres des choses sur le nature.					

Attitude Test: (Cont'd)

	Totalement d'accord	D'accord	Sans commentaires	En désaccord	Totalement en désaccord
12. Je pense que je devrais faire du bruit dans la forêt pour faire peur aux animaux sauvages et les éloigner de moi.					
13. L'hiver n'est pas froid si je suis vêtu convenablement.					
14. J'aimerais goûter à l'écorce d'un arbre.					
15. Si je mange un bon déjeuner j'aurai plus chaud quand j'irai dehors.					

BEHAVIOUR REPORT FORM

. ANALYSE DU COMPORTEMENT DURANT UNE RANDONNEE

Nom du naturaliste Date

Niveau d'âge du groupe: Nom de l'école

Nombre d'élèves dans le groupe:

Ratio: garçons filles

Un enseignant dans votre groupe: Oui Non

Un parent dans votre groupe: Oui Non:

Groupe prepare? Qui Non

Ce formulaire devrait être complété par le NATURALISTE aussitôt après la randonnée. Votre coopération aidera à évaluer l'efficacite d'une préparation pré-randonnée. Cette préparation pourra être améliorée selon les réponses que vous donnerez et les commentaires que vous ferez. Veuillez bien peser vos réponses selong les critères que vous avez établis avec le coordonnateur. Référez-vous aux définitions opérationnelles pour éclaircir certaines questions.

	Tous Plus de 90% 13/15	La plupart Plus de 50% 8-13/15	Quelques unes Moins de 50% 1-8/15	Aucun % nul 0/15
lère Partie: Information (Les questions suivantes demandent que le groupe ait été questionne par le Naturaliste). 1. Quel pourcentage du groupe a répondu correctement quant au nom du Centre?				

	Tous Plus de 90% 13/15	La plupart Plus de 50% 8-13/15	Quelques unes Moins de 50% 1-8/15	Aucun % nul 0/15
2. Quel pourcentage du groupe a répondu correctement quant à la signification du Centre?				
3. Quel pourcentage a démontré une connaissance de certains des règlements les plus importante du Centre?				
4. Quel pourcentage a compris la nécessité de ces règlements?				
5. Quel pourcentage savait à qui appartient le Centre (La montagne)?				
6. Quel pourcentage était au courant de la raison de leur visite au Centre?				
7. Quel pourcentage a compris le concept de l'écologie? (Demandez un example).				
8. Quel pourcentage savait ce que fait un naturaliste?				
9. Quel pourcentage avait pris un bon déjeuner?				
10. Quel pourcentage avait déjà visité le Centre?				
Deuxieme Parti: Observation Section 1 1. Le groupe a démontré une compréhension et un respect vis-à-vis des règlements de sécurité.				

	Tous Plus de 90% 13/15	La plupart Plus de 50% 8-13/15	Quelques unes Moins de 50% 1-8/15	Aucun % nul 0/15
2. Des pressions ont dû être exercées et des raisons données pour que les règlements soient respectés.				
3. On a dû constamment rappeler les règlements au groupe.				
4. Le groupe a démontré une compréhension et un esprit vis-à-vis des règlements de conservation.				
Section 2 1. Le groupe a posé beaucoup de questions.				
2. Le groupe était passif dans son observation de la nature.				
3. Le groupe était actif dans son observation de la nature.				
4. Le groupe a démontré une activite physique expressive durant la randonnée.				
5. Le groupe a pris part à l'initiation d'activités, de discussions et de questions.				
6. Le groupe a démontre de l'intérêt, de l'enthousiasme et de la bonne volonté a apprendre et à realiser des choses en forêt.				

	Tous Plus de 90% 13/15	La plupart Plus de 50% 8-13-15	Quelques unes Moins de 50% 1-8/15	Aucun % nul 0/15
7. Le groupe était ravi, excité et démontrait beaucoup d'enthousiansme envers la forêt, mais n'était pas très intéressé à APPRENDRE.				
8. Le groupe était replié sur lui-même, tres tranquille et passif, et ne "répondait" pas aux communications et la la forêt.				
9. Le groupe a pris de lui-même l'initiative de faire des activités.				
10. Le groupe posait beaucoup de question et démontrait une curiosité intelligente.				
11. Manque de clarté dans les discussions: le groupe sortait du sujet, et initiait des acitivités et des idéed non pertinentes.				
12. Le groupe était antipathique, malheureux, et non intéressé.				
13. Un nombre de groupe, ou une clique, dominait.				
Section 3 1. Le groupe MENAIT la randonnée.				
2. Le groupe était hyperactif, extrêmement bruyant et se dispersait continuellement en cours de randonnee.				

	Tous Plus de 90% 13/15	La plupart Plus de 50% 8-13/15	Quelques unes Moins de 50% 1-8/15	Aucun % nul 0/15
3. Le naturaliste était accepté comme étant le chef par:				
4. Le groupe a démontré amitié et respect au naturaliste.				
5. Le groupe réagissait docilement aux communications et à la forêt.				
6. Les élèves etaient attentifs, amicaux et intéressés aux suggestions et aux activités du naturaliste.				
Section 4 1. Le groupe a consenti de bon coeur à se servir de ses 5 sens				
2. Le groupe a consenti de bon coeur à gouter au vinaigrier.				
3. Le groupe a été réceptif à la demande d'écouter attentivement pour entendre les chants des oiseaux.				
4. Le groupe a été réceptif à la demande de toucher l'écorce des arbres.				
5. Le groupe a été réceptif à la demande de sentir quelque chose.				
6. Intéressé à discuter leur perception.				

	Tous Plus de 90% 13/15	La plupart Plus de 50% 8-13/15	Quelques unes Moins de 50% 1-8/15	Aucun % nul 0/15
Section 5				
1. A son arrivée, le groupe a descendu de l'autobus tranquillement, s'est divisé en sous-groupes et préparé à être dirigé par le naturaliste.				
2. Le groupe était vêtu convenablement pour le tems qu'il faisait.				
3. Les élèves avaient apporté des lunchs nourrissants (chauds)				
4. Le groupe avait des sacs étanches pour leur lunch, et était bien équipé.				

Commentaires:

1) En général, comment avez-vous trouvé le groupe?

2) Qu'est-ce qui vous a le plus impressionné de ce groupe?

3) Qu'est-ce qui vous a le plus déprimé?

4) Quelles suggestions feriez-vous quant à une autre préparation d'après l'expérience que vous avez eue avec ce groupe?

STUDENT QUESTIONNAIRE

RAPPORT DE L'ELEVE

École Date

Niveau: e année

Nom du professeur:

Cher élève,

Après avoir vu le programme audio-visuel, veuillez s'il-vous-plait répondre aux questions qui suivent. Ecrivez VRAIMENT ce que vous pensez du programme, et cela nous aidera à en préparer d'autres pour vous.

Nous anticipons le plaisir de votre visite! Merci!

Robert A. MANUS
Naturaliste

(Là où il y a des cases ☐ indiquez votre réponse par un X)

1. Comment avez vous aimé le programme?

   Beaucoup Un peu Pas du tout

2. Qu'avez-vous préféré? _____

3. Quoi d'autre avez-vous aimé? _____

4. Qu'avez-vous aimé LE MOINS? _____

5. COMBIEN avez-vous appris?

   Beaucoup Peu Rien

6. Quelles sont les choses les plus importantes que vous avez-apprises?

   a) _____

   b) _____

7. Quoi d'autre avez-vous appris? _____

8. AVANT d'avoir vu ce programme, connaissiez-vous de choses sur le Centre de la Nature?

   Beaucoup Peu Rien

9. Où aviez-vous pris ces informations? _____

10. Aviez-vous déjà visité le Centre de Nature?

    Oui Non

11. Avez-vous hâte de venir y faire une visite?

    Beaucoup Un Peu Non

12. Pourquoi? _____

13. Faites-une liste de choses que vous aimeriez savoir au sujet du Centre AVANT d'y venir:

    1. _____

    2. _____

    3. _____

RAPPORT DES ENSEIGNANTS

Ecole: _____ Date de la séance audio-visuelle: _____

Professeur: _____ Date de la visite projetée: _____

Niveau: _____ Nombre des élèves qui ont vu le programme audio-visuel: _____

Cher professeur:

Après que votre classe ait vu le programme audio-visuel, auriez-vous l'obligeance de prendre quelques minutes et compléter ce questionnaire. Cela nous permettra de nous rendre compte de l'intérêt et de l'utilité qu'a produit ce programme pour votre classe, et vos commentaires nous aideront à améliorer ce genre de préparation à l'avenir.

Merci!

Robert A. Manus
Naturaliste
Centre de Conservation de la Nature du Mont St-Hilaire.

1. Avez-vous préparé votre classe pour la randonnée prevue, AVANT la présentation de ce programme? _____

2. Si oui, quelle sorte de préparation avez-vous faite, et selon vous, à quel point en ont profité vos élèves?

3. Quelles améliorations et quels points supplémentaires devraient être ajoutés au programme, et dans quel domaine?

4. Ce programme vous a-t-il aidé à préparer vos élèves? Pourquoi? Comment?

5. Ce programme vous a-t-il aidé à comprendre les buts du Centre de Nautre?

6. Les élèves ont-ils aimé le programme?

7. Qu'ont-ils aimé le plus?

   Qu'ont-ils aimé le moins?

8. Quelle autre préparation, s'il y a lieu, aimeriez-vous faire maintenant?

9. Le programme tel que vous l'avez vu vous incite-t-il à poser des questions concernant le Centre de Nature?

10. Avez-vous d'autres commentaires?

APPENDIX C

QUESTIONNAIRE RESPONSE

ECOLE STE-JEANNE D'ARC — PROGRAMME DU 2 MARS 1976

NIVEAU: 5e année — NOMBRE D'ELEVES: 26

1ere question:

Avez-vous aimé le programme?

Oui: 20 Oui, beaucoup: 6

2e question: Qu'avez-vous préféré?

	Nombre
Les animaux qui parlaient	3
Le commencement, le bruit des animaux	2
Tout était bien beau	1
L'histoire du lièvre	1
Quand on a vu les animaux	2
La nature et les animaux	1
Les lièvres	3
L'hiver sur le lac	2
Les lapins qui sont très jolis	1
Le lièvre, les animaux	1
Les oiseaux	1
Les animaux	3
Les photos d'animaux	1
Les diapositives	2
Les pics-bois	1
Comment les animaux vivent l'hiver	1

3e question: Quoi d'autre avez-vous aimé?

Sans réponse:	3
Présentation, décor naturel, chance de voir animaux et plantes	1
Lorsqu'on voyait certains animaux et ce qu'ils mangent en hiver	1
Tout était bien beau	1
Le hibou	1
Les montagnes	2
Les informations et le paysage	1
Les pistes des animaux	1
Les arbres, comment ils poussent	1

3e question: (cont'd)

Les hiboux - en réalité, j'ai tout aimé	1
L'enregistrement	1
Les plantes	1
C'est tout!	1
La nature	1
Rien	1
Quant ils ont parlé des naturalistes	1
Lapin	1
L'écureuil	1
L'ours dans l'arbre	1
De voir la vue de loin	1
Les arbres	1

4e question: Y a-t-il quelque chose que vous n'avez pas aimé dans le programme?

	Nombre
Non	17
Non, tout était beau	6
Oui, quand les élèves ont lu les règlements tous en même temps	1
Je ne sais pas	2
	1

5e question: Avez-vous appris quelque chose de nouveau?

Oui	19
Oui, beaucoup de choses	3
Non	3
Un peu	1

6e question: Qu'avez-vous appris?

Sans réponse	4

Respect:

Que la nature est fragile	1
Qu'il ne faut pas jeter de déchets	1
Ne pas faire mal aux animaux	1

Preparation:

Qu'on nous prêterait des bottes	1

Sens:

On peut manger du vinaigrier	1

6e question: (Cont'd)

Connaissances:	Nombre
Ce qu'est l'écologie	4
Les insectes se cachent dans l'écorce des arbres	1
Reconnaître les pistes d'animaux	3
Savoir l'âge des arbres, pistes de lapins	1
Où les insectes se cachent	1
Le nom des animaux	1
Comment vivent les animaux	3
Que veut dire écologie	1
Reconnaître des pistes	1
Que les mouches vivent dans les arbres	1

7e question: Quoi d'autre avez-vous appris?

Sans réponse: 6 Rien: 2 Je ne m'en rappelle plus: 1

Respect

Ne pas parler quand c'est pas le temps.	1
Le pays est très beau	1
Les règlements	1

Connaissances

Le vinaigrier sert à nourrir l'écureuil	1
L'âge des arbres	1
Sortes et noms d'oiseaux	1
Les insectes se réchauffent dans les arbres	1
L'écologies	1
Vie des lièvres en hiver	1
Que les écureuils vivent en hiver	1
Comment vivent les animaux	1
Le comportement animal	1
Les insectes vivent dans les écorces	1
Comment se nourrissent les plantes	1
Les insectes sont dans les arbres	1

8e question: Connaissiez-vous quelque chose du Centre AVANT de voir le programme?

Non: 18 Oui: 6 Un peu: 2

9e question: Si oui, comment avez-vous eu ces renseignements?

Sans réponse: 6

Il est bien dit qu'on ne doit pas jeter de roches sur les animaux
Mon frère y était allé
Par notre maîtresse
En y allant 3
Par mon professeur 2
Par un film 1
Par le programme 1

10e question: Aviez-vous déjà visité le Centre?

Non: 22 Oui: 3 Oui, 8 fois: 1

11e question: Avez-vous hâte de visiter le Centre?

Oui: 26

12e question: Pourquoi?

J'aime beaucoup me promener en forêt surtout quand on peut voir les animaux. 1
Eh bien, parce que je n'ai jamais fait d'excursion au sujet de la nature.
Parce que je ne l'ai jamais vu. 1
Pour voir les oiseaux. 1
J'aime ça 2
J aime la nature 1
Parce que je vais en apprendre. 1
Parce que j'aime bien le Centre de la Nature. 1
Parce que c'est intéressant. 1
Parce que je veux voir si cela est interessant. 1
Pour s'amuser. 1
Pour voir la montange. 1
J'aime la montagne. 1
J'aime les activités au dehors. 1
Voir, explorer la nature, les oiseaux, les pistes d'animaux. 1
Voir la belle nature. 2
Parce que c'est beau. 1
Pour apprendre beaucoup d'autres choses 2

12e question: (Cont'd)

Pour étudier	1
Bien, j'ai hâte de voir les animaux	1
Parce que je n'y suis jamais allé	1
Pour voir les animaux	1
J'aime les arbres et les animaux	2

13e question: Y a-t-il quelque chose que vous aimeriez savoir AVANT de venir?

Sans réponse	1
Oui	10
Non, je sais à peu près tout, je crois.	1
Non, j'ai eu assez de renseignements.	1
Non	13

14e question: Quoi?

Sans réponse	16
Les noms de tous les naturalistes	1
S'il y a des animaux sauvages	1
Le comportement des animaux	2
Si ça fait rien qu'on s'apporte une gourde	1
Si on pourra boire de l'eau de source	1
Les règlements	1
Combien ça coûte pour l'entretien de la montagne.	1
Savoir si nous allons y souper.	1
La nature.	1

ECOLE LIONEL GROULX — PROGRAMME DU 9 MARS 1976

NIVEAU: 5e année — NOMBRE D'ELEVES: 30

1ère question: Comment avez-vous aimé le programme?

Beaucoup: 30 Un peu: 0 Pas du tout: 0

2e question: Qu'avez-vous préféré?

La vie des animaux	3
Le lièvre	3
Les animaux	10
Les renseignements, les conseils	2
La nature	3
L'écologie	1
Les cris des oiseaux	2
Les arbres	2
Les fleurs, les plantes	2
L'âge des plantes et des arbres (comment trouver)	2

3e question: Quoi d'autre avez-vous aimé?

La nature	4
Les animaux	5
Le hibou	1
Les renseignements	3
Voir les images	1
Quand on nous a montré l'intérieur de la maison	1
Le lapin	2
Quand les animaux parlaient	1
Les conseils	3
Les arbres, les plantes	2
Comment savoir l'âge des plantes	1
Quand les enfants posaient des questions	1
Les règlements de sécurité	1

4e question: Qu'avez-vous aimé le moins?

Sans réponse	5
J'ai tout aimé	18
Les oiseaux	1
Le bruit des oiseaux	1
Quand il a fallu lire les règlements	1
Quand le montagne est sale	1
Le castor	1
Qu'on n'ait pas beaucoup vu l'été	1
Quand ils allaient manger	1

5e question: Combien avez-vous appris?

Beaucoup: 28 Un peu: 2

6e question: Quelles sont les choses les plus importantes que vous avez apprises?

a)

Sans réponse: 2

Respect

Il faut être obéissant	1
Ecouter le guide	1
Se bien comporter	1
Suivre le naturaliste	1
Ne pas chasser les animaux	1
Des règlements du Centre	1
Garder la montagne propre	1
Ne pas toucher aux choses	3
Conserver la nature	1
Les directives à suivre	1
Ne pas jeter de papiers	1
Ne pas faire peur aux animaux	3

Préparation

S'habiller chaudement	3
Bien se vetir	1

Sensibilisation

Ecouter	1
Beautés de la nature	1

6e question: (Cont'd)

Connaissances	
Vie des animaux	1
La nature	2
L'âge des plantes	1
Ce que fait un naturaliste	1
Vie des animaux en hiver	1
Explications du naturaliste	1

b)

Sans réponse: 2

Respect	
Garder l'endroit propre	2
Suivre les règlements	1
Les renseignements	1
Ecouter le naturaliste	1
Ne pas briser les arbres	1
Ne pas faire de mal aux animaux	1
Ne pas toucher aux plantes	1
Ne pas chasser	1
Ne rien jeter	1
Ne pas faire peur aux animaux	2
Marcher derrière le guide	1
Préparation	
Bien se vêtir	1
S'habiller chaudement	2
Avoir un bon diner	1
Bien déjeuner	1
Sensibilisation	
Voir la nature	2
Connaissances	
Vie des animaux en hiver	1
Comment se passera le journée	1
Ce que fait le Centre	1
Vie des animaux	1
Que les animaux sont timides	1
La liberté des animaux	1
Importance de la forêt	1
Comment les animaux se comprennent	1

7e question: Quoi d'autre avez-vous appris?

Sans réponse: 8

Respect	
Il y a des règlements	1
Il faut écouter	1
Il faut obéir	1
Ne pas chasser les animaux	1
Ne pas toucher animaux, plantes	1
Suivre derrière le guide	1
Ne pas endommager la nature	1
Ne pas faire de bruit pour voir les animaux	2
Sensibilisation	
La nature est merveilleuse	3
Préparation	
Comment s'habiller	1
Connaissances	
Les naturalistes sont intéressants	1
Beaucoup d'autres choses	1
Les animaux	2
Les plantes aiment vivre	1
Comment vivent les animaux de Walt Disney ...	1
Traces d'animaux, plantes	1
Trouver l'âge des plantes	1
Ce que mangent les animaux	1

8e question: Avant d'avoir vu ce programme, connaissiez vous beaucoup, peu, rien, sur le Centre de la Nature?

Beaucoup: 3 Peu: 19 Rien: 7 Sans réponse: 1

9e question: Où aviez-vous pris ces informations?

En lisant des livres	3
De mes parents	3
De nos professeurs	2
Avec le naturaliste	2
A l'école	5
A la télévision	1
Au centre St-Hilaire	1
Par 2 hommes	1
De ma mère	1
De mon père	1
Sans réponse	9

10e question: Aviez-vous déjà visité le Centre de Nature?

Oui: 3 Non: 27

11e question: Avez-vous hâte de venir y faire une visite?

Beaucoup: 30 Un peu: 0

12e question: Pourquoi avez vous hâte de venir faire une visite au Centre?

Sans réponse	3
Ce sera une journée où nous serons bien ensemble.	1
Parce que c'est très intéressant.	3
Parce que ca a l'air intéressant.	1
Parce que j'aime le plein air.	1
Pour voir la nature.	1
Pour apprendre.	5
Parce que j'ai hâte de découvrir la nature de plus près.	1
Parce que j'aime me promener dans la forêt.	1
Pour apprendre d'autres choses.	1
Parce que c'est beau, on voit la nature.	1
Ce n'est pas tous les jours qu'on en a l'occasion.	1
Pour voir les belles choses.	1
Parce que j'ai hâte.	2
Pour faire de la raquette et regarder les animaux.	1
Parce qu'il y a des choses que j'aimerais voir.	1
Pour visiter la nature.	1
Parce que je ne sais pas beaucoup de choses sur la nature.	1
Parce que c'est joli et on apprend.	1
Pour connaître et decouvrir.	1
Parce que j'aime ça le plein air.	1

13e question: Faites une liste de choses que vous aimeriez savoir au sujet du Centre de Nature AVANT d'y venir.

1)

Sans réponse: 6

Savoir si il y a beaucoup d'animaux.	1
D'autres choses dur les animaux.	1
Comment l'oiseau se nourrit l'hiver.	1
La hauteur du Mont St-Hilaire.	1
Combien d'années le naturaliste doit-il faire à l'école.	1
Reconnaître les pistes.	1
La vie des animaux.	3
Si on a le droit d'apporter un canif?	2
Combien de sortes d'animaux il y a ?	1
Si on peut appeler les animaux dans nos mains.	1
Voir beaucoup d'animaux.	1
Comment les animaux se nourrissent.	2
Le nom des plantes.	1
Combien il y a de naturalistes?	1
Les fleurs.	2
Des informations.	2
Comment ils se sont pris pour faire cela?	1
Qu'il ne faut pas faire de bruit pour voir les animaux.	1

2)

Sans réponse: 14

Apprendre des choses sur les plantes.	2
Comment se nourrit le lièvre?	1
Combien de fois par année accompagnez-vous des classes?	1
Où le naturaliste a-t-il fait ses études?	1
Reconnaître les arbres.	2
S'il faudra rester en rang dans la forêt?	1
Voir des renards.	1
Comment se comportent les animaux.	1
Les oiseaux qui vont vers le sud.	1
Le lapin.	1
Que mangent les animaux?	1
Le vie des plantes.	1
Comment on est accueuilli au Centre.	1
Les insectes qui se cachent sous l'écorce.	1

3)

Sans réponse: 19

Comment les oiseaux sont l'hiver.	1
Aimez-vous l'écologie?	1
Comment le naturaliste fait-il ses études?	1
Reconnaître les plantes.	1
La nature.	1
Si on pourra appeler le naturaliste par son nom.	1
Comment se défendent les animaux.	1
Les oiseaux.	1
Les animaux.	1
Pourquoi les animaux mangent-ils?	1
Où habitent-ils (les animaux) l'hiver?	1

ECOLE ST-MATHIAS — PROGRAMME DU 23 MARS 1976

NIVEAU: 5e annee — NOMBRE D'ELEVES: 26

1ere question: Comment avez-vous aimé le programme?

Beaucoup: 25 — Un peu: 1 — Pas du tout: 0

2e question: Qu'avez-vous préféré?

Lorsqu'il montrait les pistes	2
Des animaux qui sautaient (écureuil)	2
J'ai préféré le lapin	3
J'ai préféré le raton laveur	1
Le hibou (renseignements)	3
Les animaux	4
Le pic et le raton (renseignements)	2
Le monsieur qui nous a donné des indications	2
J'ai préféré les forets	3
Renseignements sur les insects	1
La protection des animaux	1
Les découvertes	1
Les diapositives sur les enfants et les raquettes	1

3e question: Quoi d'autre avez-vous aimé?

Le hibou	3
Les animaux et la nature, et les plantes	5
L'organisation	1
Les plantes, les fleurs, les arbres	5
Le pic, les oiseaux	3
Quand le monsieur de la nature nous expliquait	3
Pistes d'écureuils, sentir les traces d'écureuils	3
Le lapin, comment il a parlé	2
Le sport qu'il fait tout en regardant la nature.	1

4e question: Qu'avez-vous aimé le moins?

Sans réponse	8
J'ai tout aimé	7
La première section	1
Quand on met nos mains dans le trou	1
Quand les enfants criaient	1
Le hibou	1
Le lapin	1
Quand les enfants parlaient tous en même temps	1
Les traces	1
Les renseignements du pic-bois	1
Le hibou et l'écureuil	2
Quand le naturaliste a mis sa main dans le trou.	1

5e question: Combien avez-vous appris?

Beaucoup: 24 Un peu: 1 Sans réponse: 1

6e question: Quelles sont les choses les plus importantes que vous avez apprises?

a)

Respect

Conserver la nature belle	1
Ne pas toucher aux fleurs	1
Ecouter le professeur	1
Comment se conduire	1
Ne pas déranger les arbres	1
Rester en arrière du naturaliste	1
Ne pas capturer les animaux	1
Garder la montagne propre	1
Les lois	1
Ne pas chasser les animaux	1
On ne doit pas crier	1
Ne pas faire mal aux animaux	1
Ne pas parler	1

Préparation

Comment nous habiller	1
Avoir des bottes chaudes	1
S'habiller chaudement	1

6e question: (Cont'd)

Sensibilisation
Bien sentir les pistes 1
Bien regarder 1
Ecouter 1
Observer 1

Connaissances
L'âge des arbres 1
L'écologie 1
Comment vivent les animaux 1

b)

Respect
Ne pas faire du bruit 1
Ne pas briser les plantes 1
Suivre le constructeur ou la constructrice 1
Ne pas faire peur 1
Suivre les naturalistes 1
Ne pas gâcher la nature 1
Ne pas maganer les animaux 1
Faire attention aux animaux 1
Les reglements du Mont St-Hilaire 1
Ne pas effrayer les animaux 1
La chasse: non 1

Sensibilisation
Ecouter 1
Voir 1
Ecouter 1
Regarder 1
Bien regarder et bien entendre 1
Bien écouter les sons de la nature 1

Préparation
Ne pas apporter notre lunch dans un sac brun 1
Etre habillé chaudement 1
Avoir des bottes sans talons 1

Connaissances
Comment vivent les plantes 1
Les sentiers 1
Les habitations des animaux 1
La science et la nature 1

7e question: Quoi d'autre avez-vous appris?

Respect	
Protéger la faune et la nature	1
Comment se tenir	1
Ne pas faire peur aux animaux	1
Ne pas faire de bruit	1
Suivre les règlements qui sont écrits	1
Comment tenir un endroit propre	1
Ne pas toucher aux animaux	1
Préparation	
Comment prendre un dejeuner chaud	1
J'ai appris comment amener mon lunch	1
On doit s'habiller chaudement pour la journée	1
Sensibilisation	
On pourrait gouter aux arbres	1
Connaissances	
Les études	1
Ou les moustiques se cachent l'hiver	1
Sur les fruits rouges	1
Ce qu'ils mangent (les animaux)	1
Le trajet	1
Comment voir les arbres qui vivent	1
Un peu d'écologie	1
Quelques noms d'animaux	1
De quoi vit la nature	1
Qu'ils faisaient des trous (animaux)	1
Des plantes, comme quoi des branches	1
Les insectes qui se tiennent dans les troncs d'arbres.	1

8e question: Avant d'avoir vu ce programme, connaissiez-vous beaucoup, peu, rien, sur le Centre de la Nature?

Beaucoup: 3 Peu: 13 Rien: 10

9e question: Où aviez-vous pris ces informations?

Avec audio-visuel	4
De ma mère	1
A la télévision	1
Par des hommes	1
A l'école	6
Dans des livres	1
Dans des livres de recherche	1
Du parc safari-africain	2
Quand je restais à la campagne	1
Au parc	1
A la campagne et ma mère m'a dit ca.	1
A la campagne et ma mère me l'a appris.	1

10e question: Aviez-vous déjà visité le Centre de Nature?

Oui: 1 Non: 25

11e question: Avez-vous hâte de venir y faire une visite?

Beaucoup: 24 Un peu: 1 Sans réponse: 1

12e question: Pourquoi (avez-vous hâte de venir faire une visite au Centre)?

Un peu, parce que j'ai vu ces choses	1
Parce que je vais apprendre des choses	1
Pour examiner la nature	1
Parce que j'aime me promener dans la forêt	1
Pour savoir ce qu'il y a dans la forêt	1
Pour mieux apprendre d'autres choses que je ne sias pas	1
Parce que j'aime les animaux	1
Pour voir des pistes	1
Pour mieux voir les animaux de près	1
Parce que je veux voir la nature	1
Car je pourrai savoir plusieurs choses sur la nature	1
Pour se promener et examiner des choses	1
Pour mieux voir les merveilles de la nature	1
Pour voir des animaux	1
Il y a juste à voir le programme	1
Parce que j'aime la nature fraiche et les animaux	1

12e question: (Cont'd)

Pour visiter les plantes et les animaux. 1
Pour voir des animaux et des plantes 1
Parce que ça va être beau 1
Pour admirer la nature 1
Parce que je veux connaitre la nature 1
Parce que j'ai vu le programme et j'ai hate 1

13e question: Faites une liste de choses que vous aimeriez savoir au sujet du Centre de Nature AVANT d'y venir.

1ère partie:

Où est-ce qu'on va passer? 1
Je voudrais connaître mieux les lois. 1
Comment mettre les raquettes. 1
Où se cachent les animaux? 1
Si c'est dans l'eau. 1
Si on aura le droit de toucher aux animaux. 1
J'aimerais savoir si on va aller dans la montagne. 1
Où est située la montagne? 1
Si on a le droit d'amener nos raquettes. 1
Les animaux - comment savoir bien les nourrir . 1
Comment les animaux mettent au monde des bébés. 1
Comment se rendre. 1
Comment les animaux font des trous. 1
Les raquettes. 1
S'il y a assez de neige pour avoir des raquettes. 1
Savoir si c'est joli. 1
Comment différencier les plantes qui vivent et celles qui ne vivent pas? 1
Est-ce qu'il y a des ours? 1
l'age des arbres. 1
Savoir ou vivent les lapins. 1

2e partie:

Que fait un naturaliste 1
Comment ne pas faire de bruit 1
Que mangent les animaux 1
S'il y a des animaux 1
Si on pourrait rapporter un souvenir 1
S'il y a des ours et des loups 1
Quelle route on prend 1

13e question: (Cont'd)

Si les lièvres dorment tout l'hiver	1
Comment se conduire bien et se comporter	1
Comment les animaux creusent	1
Est-ce qu'il y a des ours	1
J'aimerais bien voir des pistes d'ours	1
Des mocassins	1
Comment différencier les sortes d'arbres	1
Est-ce qu'il y a des chevreuils	1
Les traces d'animaux	1
Savoir où vit l'ecureuil	1
Comment voir les traces dans la neige	1

3e partie:

Qu'est-ce qu'on nous apprend	1
Qu'est-ce qu'il y a là-bas	1
Va-t-on loin?	1
Si c'est grand	1
Si on a le droit d'emmener un animal	1
S'il y a des ours	1
Des animaux	1
Comment différencier les fleurs	1
Est-ce qu'il y a des renards	1
Les insectes	1
Savoir où vivent les pic-bois	1
Quels animaux ici	1

RAPPORT DES ENSEIGNANTS

Responses

Ecole: Ste-Jeanne D'arc.

1. Oui, nous avions préparé la classe pour cette randonnée avant la présentation de ce programme.

2. A- préparation éloignie: Depuis septembre nous avons étudié ensemble différents thèmes sur la nature:
a) les arbres b) l'eau c) l'air d) les oiseaux
e) les animaux f) science humaine: milieu geographique

B- Préparation rapprochee: a) revue des différents themes.
b) projet de voyage.
c) renseignements concernant le centre.

C- Préparation immédiate: a) Organisation immédiate de l'excursion.
b) Renseignement concernant le centre de la nature.
c) Règlementation du centre (lecture et explication des règlements et lecons de cevisme).
d) Listes de choses à prevoir pour la réussite de cette journee.
e) Responsables de cette journée.
f) Diaporama presente par Robert
g) Contrôle.

2B. Je pense que les élèves qui ont vu le diaporama ont été très enchantes. Ils ont trouve cela bien interessant. Je trouve que cela est le complément des connaissances déja acquises. Les élèves qui ont suivi le programme seront peut être plus attentifs à certains détails. Ils voudront (verifier) voir ce qu'ils ont découvert ou cours de cette présentation audio-visuelle . . . les jeunes de cet âge sont très observateurs.

4-7 J'ai déjà visité le Centre de la nature alors j'ai renseigné mes élèves sur celui ci. Apres la présentation du diaporama je n'ai pas eu de conversation sur ce sujet à la demande du quide naturaliste.

5 Les principaux but fixis par le Centre de la Nature ont été atteint. Sans doute que ce programme est d'une grande utilité pour attendre ces buts.

6. Les élèves ont bien aime le programme, la présentation audio-visuelle. Ils ont apprécié les explications du guide naturaliste.

8. Possibilite de faire un interview sur place.
Possibilite d'un compte-rendu à l'ecole.
Possibilite d'un compte rendu ou appreciation de la journie au centre de la hature.
Continuation de cette journie tout ou cours de l'année par des recherches, des travaux, des lectures, un montage audio-visuel . . . etc.

10. J'ai bien aimé le programme presenté aux élèves. C'était bien interessant. La presentation audio-visuelle est très claire et assez facile à suivre. Les explications sont bien precises. Les élèves étaient heureux de répondre aux differentes questions. (J'ai trouvé cette présentation un peu longue pour un groupe élève 10 ans. Je pense que malgré la longueur de cette présentation on a gardé l'interêt des élèves jusqu'a la fin; Robert a pu le constater.

A. Ecole: Lionel Groulx

1. Quelque peu.

2. Quand nous avons reçu le programme de la visite j'ai vu les différents points notes et j'en ai discuté avec les élèves. Les eleves sont conscients de ce que nous allons visiter et vivre pendant notre journee du 10 mars.

3-10 Not complete.

B. Ecole: St Mathias Apotre

1. Non.

2. —

3. Un travail écrit (très court).

4. Oui, pour suivre les mêmes objectifs que le Centre.

5. Oui.

6. Beaucoup.

7. a. piste d'animaux, comment compter la pousse des branches tout était tres beau.

8. Reviser.
   Travail écrit pour approfondir.

9. Oui, nous espérons avoir les résponses sur place.

APPENDIX D

OPERATIONAL DEFINITIONS

OPERATIONAL DEFINITIONS

Information Test

This section requires active questionning of the group by the naturalist.

This section is essentially an informational quiz to test the retention level of the groups concerning the AV program and possible transference of knowledge.

We ask that these nine questions be presented to the group between the parking lot and the information caban.

The percentage of the group signifies a correct response as follows:

90% or 13/15 of an average group	- All
50% or 8-13/15 " "	- Most
less than 50% or 1-8	- Some
0/15	- None

1. Name of Centre: Mont St Hilaire Nature Conservation Centre.

   Explanation: Although the name of the mountain is Mont St. Hilaire the desired response is the more specific 'Centre du conservation de la nature'. If the children at first reply Mont St. Hilaire, the naturalist asks them to be more specific. It is vital to recognize the correct name with its inherent meaning.

2. Meaning of Centre:

   a. The protection of animals and plants.
   b. Teaching how to protect.

   Explanation: Evidently the Centre will have different meanings for different people. The first objective of the Centre, however, is to preserve the mountain in its natural state. The second objective is to educate the public towards the preservation of the mountain and beyond this of all natural areas by encouraging the understanding of ecology, appreciation of wild things and the love of the natural world. Children often view a place with regulations as somewhere which certain things cannot be done rather than a place where a certain type of activity can take place.

3. The following are the more important regulations:

   1. Do not chase the animals.
   2. Do not collect plants.
   3. Do not leave garbage behind.
   4. No horses or dogs allowed.
   5. Skidoos and automobiles are prohibited.

The above regulations are the most important for the children to be aware of and should be elicited from any generalizations about protection of nature.

4. Need for Regulations:

The aim of regulations is to protect the natural state of the mountain. You may find that if the children are aware of regulations they know why such regulations exist although not always in specific terms. For example, they may not all understand how skidoos or horses affect the environment, although they have a general impression. It is satisfactory, however, that they understand in general that rules exist to protect and then details or examples provided.

5. Owner- McGill University.

This is the real owner.

6. To Observe and Learn:

These are the main objectives. Obviously we would like that the students enjoy themselves while doing this, however, it is not a holiday from school. Activities such as snowshoing, skiing, climbing a peak, etc., are auxiliary to the educational aim.

7. The Concept of Ecology: Interrelationships Between Living and Non-Living Processes in Nature.

As an abstract principle, ecology is difficult to understand and express. It would be sufficient to elicit a specific example of ecology which the children should know from the AV program.

8. What a Naturalist Does:

1. Studies nature.
2. Helps others to observe and to learn.

Eliciting these two roles of the of the Naturalist are equally important.

9. Good Breakfast — a hot meal or nourishment at least.

10. Visit — at least once.

This is important to ascertain since someone who has visited before may have a very different orientation to the place. A simple raising of hands would suffice and then questionning of those who had visited to ascertain frequency and their impressions.

BEHAVIOUR: REPORT FORM

Section I:

1. Any activities that would threaten the health or safety of children or other visitors such as running, yelling, throwing, climbing, getting lost, etc.
2. Combined use of force, punishment, explanation, threatening, to ensure obeyance of regulations.
3. Constant reminders about regulations.
4. The actions of students demonstrates they understand regulations depending if they break any or not.

Section II.

1. If each child asks at least one question during a trip it would be considered alot or at least a healthy curiosity.
2. No observing, discovering, questioning.
3. Observing, pointing out, indicating to others, asking questions.
4. More desire to run, hike, climb, play games, sing, than to learn and observe.
5. Curious and motivated to learn and participate.
6. Well disciplined and eager to learn and participate.
7. See 4.
8. See 2.
9. Without the naturalist initiating activities the group spontaneously observes and discusses on its own.
10. See 3.
11. Fragmented and excited but little focus on learning.
12. Unhappy about situation and visit.
13. Could happen in positive sense however normally tends to disorient group from naturalist.

SECTION III:

1. The group leads the hike.
   Either so enthusiastic they discover on their own or disinterested and wander ahead.
2. See 2 -2.
3. Naturalist is able to lead group from point to point and is accepted as guide-teacher.
4. No discipline problems.
5. Acceptance - See 3-3.
6. As above.

SECTION IV:

1. Willing to use all the senses as demonstrated by naturalist. The points 2-6 qualify the different methods and items possible depending on occasions in reality presenting themselves.
2. To taste the fruit of the sumac, which has a vinaigre like taste. Also used could be the bark of the yellow birch which tastes of wintergreen.
3. The group remains silent long enough to hear the sounds of birds a stream the wind, etc.
4. To take off mitts/gloves, and touch the bark of a tree or some object with texture.
5. To smell the tracks of an animal, bark, a plant, etc.
6. To elicit a response on experimenting with senses and discuss feelings.

SECTION V:

1. If they come off the bus running, yelling, and generally noisy and confused and sometimes leave debarkation area ahead of naturalist, they are acting in reverse of this.
2. Warm boots, gloves, long underwear, warm coat and boots, etc.
3. Warm lunch preferably (soup, hot drink) or adequately filling lunch.
4. Plastic bags or carrying backpack or shoulder bag. Also notebook, binoculars cameras magnifying glass, etc.

APPENDIX E

SCRIPT

AUDIO-VISUAL SCRIPT

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
1		Natural sounds, streams, birds, etc.
2		
3		
4		
5		
6	On recontre frequement l'elureuil gris.	
7		
8	Le Paysage est superbe.	
9		
10		
11	Le geal bleu vous salue.	
12		
13	Le Mont St. Hilaire.	"Allo! je vous souhaite la
14	Le Mont St. Hilaire (arrow)	vienvenue au Mont St. Hilaire,
15	Une classe arrive au parc de stationnement.	une magnifique montagne boisée située à une vingtaine de milles de Montréal. Si je
16	La montagne les attend.	comprends bien, votre classe
17		vient faire une visite spéciale
18	Edudiants au parc de stationnement.	à notre montagne afin de découvrir par vous-memes quelques-unes des milliers de choses qui se passent dans la nature. A propos, connaissez-vous le nom de l'organisation en charge du Mont St. Hilaire?
19		C'est bien ça! Le CENTRE DE
20	L'avenir.	CONSERVATION DE LA NATURE DU
21		MONT ST. HILAIRE. J'en suis
22		le directeur, et fais partie
23		de l'équipe de naturalistes dont la responsabilité est de protéger cette montagne, non seulement pour maintenant, mais aussi pour l'avenir. Avec cent mille visiteurs par année, vous voyez combien il est

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
		important que tous ceux qui viennent ici - vous aussi - comprennent exactement ce qu'est cet endroit, et de quelle facon tous doivent se conduire quand ils viennent à la montagne. Pour cette raison, j'ai demandé à un de nos naturalistes de vous expliquer ce qu'est le Centre de la Nature.
24 25 26		Speaker: A Naturalist "Bonjour les gars, bonjour les filles! Je suis un des naturalistes qui travaillent à protéger la montagne en enseignant aux gend des choses sur la nature. Avant que vous veniez nous rendre visite, nous aimerions que vous sachiez certaines choses. Nous aimerions que vous sachiez 1) quel endroit exactement vous allez vixiter; 2) pourquoi vous allez visiter cet endroit 3) qu'est-ce qu'un naturalist fait exactement; 4) comment on peut apprendre des choses sur la nature; 5) comment vous devez vous préparer à cette visite.
27 28 29 30	La mesange a tête noire. La Lievre. Le Porc-Epic.	Premièrement, laissez-moi vous parler un peu de l'endroit vous allez visiter: Le Mont St. Hilaire, c'est avant tout la demeure des animaux et des plantes. Ce sont EUX qui ont le droit de vivre au Mont St. Hilaire, pas les gens. Le Centre de Conservation de la Nature du Mont St. Hilaire, c'est un endroit où les animaux sauvages et les plantes sont protégés.

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
31 32 33		"Les gens qui viennent sont seulement des visiteurs. Ils viennent en été se promener dans les sentiers ou se reposer sur le bord du lac. En hiver, ils viennent observer la nature et explorer, soit en skis de fond ou en raquettes. Mais, peu importe le temps où ils viennent, c'est toujours plus intéressant quand ils comprennent le monde vivant qui les entoure.
34 35		Au Centre de Nature, on fait aussi des recherches en écologie – c'est-à-dire l'étude des plantes et des animaux en relation avec le milieu où ils vivent. Ceci nous aide à mieux comprendre les besoins de tous les êtres vivants qui y vivent, et aussi à mieux les protéger. De façon à préserver la montagne ainsi que les animaux et les plantes qui y vivent, le Centre de Nature a établi certains règlements qui doivent être observés par chaque visiteur.
36		Nous allons maintenant lire ensemble les règles du Centre. Vous êtes prêts? Allons-y . . . .
37 38		GROUP INTERACTION. READING OF RULES & REGULATIONS. . . . que chacun fasse sa part pour garder la montagne propre . . .
39		A pupil: . . ."enfin, c'est pour dire qu'il faut faire attention à la montagne, ne pas attraper les animaux, ne pas polluer l'air . . . . . "

-FIN DE LA PREMIERE SECTION. FAITES LA REVISION AVEC VOTRE PROFESSEUR AVANT DE COMMENCER LA SECTION QUI SUIT.-

REVUE - SECTION I (Review Section, OBJECTIVE I)

- Le nom de l'endroit que vous allez visiter est . . . oui: Le Centre de Conservation de la Nature du Mont St-Hilaire.

- Le directeur du Centre est responsable de: LA PROTECTION ET LES OPERATIONS DU CENTRE.

- Les naturalistes aident à protéger le Centre en . . . ENSEIGNANT AUX GENS DES CHOSES CONCERNANT LA NATURE.

- Le Centre est un environnement naturel où, PAR-DESSUS TOUT, LES ANIMAUX ET LES PLANTES SONT PROTEGER.

- Les personnes qui fréquentent le Centre y viennent pour . . . SE DETENDRE ET POUR APPRENDRE DES CHOSES AU SUJET DE LA NATURE.

- Les règlements ont été créés pour PROTEGER LA FAUNE ET LA FLORE DU CENTRE.

OBJECTIVE II -- Purpose in visiting the Centre;
Learn and Observe
Objet d'une visite au Centre:
Apprendre et observer.

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
40		LIVE GROUP INTERACTION. Naturalist: "C'est quoi exactement la raison pour laquelle vous êtes venus ici au Mont St. Hilaire?"
41		"Pour voir la nature. Exactement". "Pour apprendre, excellent! . . . pour apprendre quoi?"
		SPEAKER: A NATURALIST "Maintenant, je vais vous présenter un jeune hibou qui va vous dire pourquoi vous venez au Centre.
42	Un jeune grand duc.	"OUOUOU . . . qui êtes-vous? . . . ah! je sais: vous faites partie d'une classe qui vient visiter le Centre de la Nature! Moi? j'suis un jeune hibou très sage. . . et j'espère que vous êtes sages aussi! . . . vous êtes certainement jeunes comme moi, et vous comme moi avez beaucoup à apprendre . . . surtout si nous voulons devenir grands et sages . . . comme les hiboux! On peut apprendre un tas de choses ici au Centre: des choses sur les animaux: où ils vivent, ce qu'ils aiment à manger, à quelles sortes de familles ils appartiennent . . . et puis des tas d'autres choses aussi.

VISUAL		
SLIDE NO.	GRAPHICS	AUDIO
43 44 45 46 47 48		LIVE GROUP INTERACTION. NATURALIST & GROUP DISCUSS— ANIMAL TRACKS, etc ...
49		-"Aussi, on peut étudier les plantes et leurs besoins en sol et en soleil, comment elles se reproduisent, et quels animaux les mangent.
50 51 52	Pin Blanc.	LIVE GROUP INTERACTION. NATURALIST & GROUP DISCUSS PINE TREES, etc ...
53		-"En fait, on peut apprendre beaucoup sur l'écologie de l'endroit que vous irez visiter. Vous savez ce que ça veut dire ECOLOGIE? ... ah...je vois...certains d'entre vous le savent. Moi? Je viens tout juste d'apprendre ce que ça veut dire ECOLOGIE, et c'est bien simple: l'ECOLOGIE c'est l'étude des rapports ou des relations entre les choses VIVANTES et les choses NON VIVANTES.
54 55	Le Vinaigrier A l'aide d'eau, de mineraux, de sol et de soleil.	Papa Hibou, en me l'expliquant, m'a donné un bon exemple de ce qu'est l'écologie: commençons par une plante: un arbre disons, tiens, le vinaigrier. De quoi un tel arbre a-t-il besoin pour pousser, pour grandir?
56 57 58	Le fruit se forme. Et est pret. A être mangé par le gros-bec.	C'est ça: de soleil, des sels minéraux qui sont contenus dans l'sol, de l'eau et de l'air; alors, nous avons tout cela ici, et l'exemple que j'viens de vous donner montre un rapport entre un arbre, qui est VIVANT, et entre le soleil, l'eau ou

VISUAL		
SLIDE NO.	GRAPHICS	AUDIO
		l'air qui sont des éléments NON VIVANTS. Vous voyez, le vinaigrier a des relations avec le sol l'air et l'eau, mais aussi avec beaucoup d'autres choses: les oiseaux, comme le gros-bec; ces oiseaux mangent son fruit.
59		Les écureuils aiment beaucoup
60	Qui a fait ça?	le vinaigrier aussi. Vous voyez par conséquent qu'en prenant juste une plante comme exemple, on trouve plusieurs relations écologiques. Imaginez! il y a des centaines de plantes au Centre de Nature. Vous voyez qu'il y a beaucoup à apprendre n'est-ce-pas?
61		LIVE GROUP INTERACTION.
62		NATURALIST AND GROUP DISCUSS
63		aubépine, etc ....
64		
65		
66		
67		OUOUOU direz-vous...comment s'y
68	Observez patiemment.	prend-on pour apprendre tout cela? Mon cher papa hibou m'a dit un jour: "Je n'peux pas passer tout mon temps à te dire tout ce que j'sais . . . il faut que je chasse pour vivre; il faut absolument que tu découvres ces merveilles par toi-même ... Je m'rappelle: il m'a bien dit: TU DOIS DECOUVRIR ET OBSERVER.
69		". . . Afin de faire des découvertes, tu devras, aussi discrètement que possible, te faufiler sans faire de bruit pour ne pas faire peur aux animaux ou aux oiseau."

VISUAL		
SLIDE NO.	GRAPHICS	AUDIO
70		. . . "Quant à observer, tu devras être presque immobile, attendre patiemment de voir tout ce qui bouge ou tout ce qui fait du bruit . . . . Souviens-toi bien m'a-t-il souvent répété, que les animaux craignent tout mouvement; autrement, ils courent et vont se cacher . . . et toi, tu ne les verras pas . . .
71		LIVE GROUP INTERACTION. GROUP DISCUSSION.
72		. . . "Maintenant que vous savez ce que vous viendrez faire au Centre de Nature, et que vous avez bien compris comment il faut vous comporter, je suis sûre que bientôtvous en saurez autant que moi, hibou, sur la nature. A bientôtHOHOHOUUUU ....

FIN DE LA DEUXIEME SECTION. FAITES LA REVISION DE CETTE SECTION AVEC VOTRE PROFESSEUR AVANT D'ENTREPRENDRE LA SECTION SUIVANTE.

REVUE — SECTION II (Review Section Variable II)

- Votre classe est venue au Centre: . . . afin d'observer et d'apprendre.
- Nous étudierons: . . . . l'écologie du Mont St. Hilaire.
- L'écologie?: . . . ça veut dire l'étude des relations entre les choses vivantes et les choses non-vivantes dans la nature.
- Par exemple?: . . . la relation entre le vinaigrier (vivant) et le gros-bec (vivant).
- La meilleure façon d'apprendre en quoi consiste l'écologie: ... est de découvrir et d'observer par vous-mêmes, et cela en PLEIN AIR.

VARIABLE III: Understanding and Respecting the Role of Naturalist.
Comprendre et respecter le rôle du Naturaliste.

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
73		"Maintenant, je vais vous présenter Madame Raton-Laveur, et bien qu'elle soit mal à l'aise en présence du hibou, elle va vous expliquer ce que vous allez faire pendant votre visite en suivant votre naturaliste."
74 75	Le raton-laveur.	"Dieu merci, cet hibou est parti! ah, je respire mieux, et je suis à vous maintenant mes petits amis. Alors, vous êtes ici au Centre de la Nature du Mont St. Hilaire pour apprendre quelque chose à mon sujet et au sujet de mes amis ... ça ne sera pas facile. . . . voyez-vous, nous sommes de nature timide et secrète . . .
76 77		Vous en avez d'la chance d'avoir un naturaliste qui puisse vous guider et vous aider à apprendre. Normalement, nous les animaux avons peur du monde . . . c'est à dire, nous AVIONS peur . . . jusqu'à ce que nous ayons appris ce qu'est un Naturaliste, le savez-vous?
78 79	Le Naturaliste connait bien la forêt. Il vous aide à apprendre en vous posant des questions.	LIVE GROUP INTERACTION. GROUP DISCUSSION ON WHAT IS A NATURALIST.
80 81	Explique les bonnes responces. Vous apprenez en demandent des questions aux naturalistes.	"C'est bien ça! un naturaliste est une personne qui a étudié l'écologie, non seulement à l'université, mais aussi en plein air. Il connaît un tas de choses à notre sujet: où nous faisons nos maisons, ce que nous mangeons, ce que nous faisons à différentes saisons. Mais heureusement EUX NE nous chassent pas comme le font les hiboux! Ils apprennent à nous connaître pour mieux nous protéger et pour transmettre à d'autres ce qu'ils savent sur nous.

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
82		LIVE GROUP INTERACTION.
83		GROUP DISCUSSION as to where insects
84	écourse	hide in winter, etc.
85		
86		
87		"Quand vous venez à la montagne, le naturaliste vous guide tout le long des sentiers, vous aide à localiser plantes et animaux, et répond à vos questions . . .
88	Le naturaliste vous montre comment trouver certains animaux.	LIVE GROUP INTERACTION. GROUP DISCUSSION - FOLLOWING OF ANIMAL TRACKS, etc. . .
89		
90		
91		"Il vous demande de toujours suivre derrière lui, et s'assure que vous obéissez à toutes les règles de sécurité et de conservation . . .
92	L'école d'un arbre est comme la peau; elle protege l'arbre.	LIVE GROUP INTERACTION. NATURALISTS' RECOMMENDATIONS (no carving on bark of trees, etc.)
93		"Il y a beaucoup de choses stimulantes qu'un naturaliste peut
94	Mettez vos rawuettes et silencieusement.	vous montre pour vous aider à
95		comprendre la nature. Par exemple, si votre visite est en hiver, il vous fournira raquettes et mocassins si vous n'en avez pas, et vous indiquera comment les chausser!
96		LIVE GROUP INTERACTION. NATURALIST EXPLAINS HOW TO PUT SNOWSHOES ON.
97		"Ensuite, il vous guidera le long d'un sentier et . . . "
98		LIVE GROUP INTERACTION. NATURALIST EXPLAINS WITH AID OF MAP TRAIL LEADING TO BURNED HILL.

VISUAL		
SLIDE NO.	GRAPHICS	AUDIO
99 100 101 102 103 104	Comment l'ecureuil trouve-t-il sa nourriture sous la neige?	"Voici un naturaliste qui montre à une classe comment un écureuil marche sur la neige. Vous allez apprendre comment reconnaître les pistes d'écureuils. . . . Un étudiant veut savoir ce que l'écureuil mange en hiver; un autre a découvert le trou dans lequel l'écureuil a entreposé ses aliments à l'automne . . . et chacun introduit sa main dans le trou.
105 106 107 108		" . . . Ici, un autre naturaliste montre à une classe comment reconnaître un arbre par ses bourgeons; quelqu'un demande ce qu'est un bourgeon . . . . le naturaliste en donne donc l'explication à tous. Il explique ensuite comment savoir l'âge d'une branche ou d'un arbre.
109 110		LIVE GROUP INTERACTION. NATURALIST EXPLAINS HOW TO TELL THE AGE OF A TREE.
111 112 113	Qu'allons nous decourir l'apres-midi?	" . . . A midi, vous mangerez votre déjeuner pique-nique en compagnie du naturaliste, en plein air s'il fait assez chaud; sinon, il ou elle vous emmènera à l'intérieur où vous pourrez vous réchauffer tout en mangeant. Après, vous retournerez dehors pour d'autres aventures!

FIN DE LA SECTION III. REVISEZ CETTE SECTION AVEC VOTRE PROFESSEUR AVANT D'ENTREPRENDRE LA SECTION SUIVANTE.

REVUE SECTION III (Review Section Variable III)

- Quand vous viendrez au Centre, votre chef et enseignant sera un/une ... NATURALISTE.

- Un naturaliste est une personne qui a étudié . . . l'ECOLOGIE.

- Le naturaliste vous guidera le long d'un sentier et VOUS AIDERA A OBSERVER ET A APPRENDRE.

- Il vous demandera de toujours suivre par derrière lui et d'obéir AUX REGLES DE SECURITE ET DE CONSERVATION.

- Quand vous êtes en randonnée avec un naturaliste, vous devriez LUI DEMANDER DES QUESTIONS A PROPOSE DE CHOSES QUE VOUS VOYEZ ET DESQUELLES VOUS VOULEZ EN SAVOIR PLUS.

VARIABLE IV —Using the senses.
Utilisation des sens.

VISUAL		
SLIDE NO.	GRAPHICS	AUDIO
114 115		Pic-bois (sound of tapping). (son d'un pic chevelu qui tape).
116		"Allo, allo, j'suis Pierre le pic-chevelu! Le naturaliste va vous montrer toutes sortes de moyens intéressants par lesquels vous apprenrez à connaître la nature en vous servant NON SEULEMENT de vos yeux, mais aussi de votre nez, de vos oreilles, de votre langue, et spécialement de votre sens du toucher. "Nous savons bien que différents animaux se servent de différents sens pour trouver leur nourriture. Par exemple: - Le renard se sert de son nez pour renifler dans le vent et trouver ainsi où il y a quelque chose de bon à manger. - Le lievre, lui, utilise son nez ET ses oreilles pour découvrir si un ennemi (peut-être le renard dont on vient de parler) s'approche . . . - Moi, Pierre le pic chevelu, je tape sur du bois pour savoir si le tronc est creux et ainsi cache des insectes . . . - Le naturaliste vous apprendra à utiliser TOUS vos sens, pour découvrir et pour apprendre, tout en vous amusant.
119		"Voici des exemples dont j'ai été moi-même témoin un jour:

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
120		- écouter des oiseaux (BIRD SOUNDS)
121	Cette ecorce est comme de la fourrure.	- toucher à de l'écorce.
122		- goûter au vinaigrier.
123	Ca goute un peu sur ne	
124	m'oubliez pas!	
125		- sentir des pistes et des trous.
		Le naturaliste vous apprendra à utiliser TOUS vos sens, pour découvrir et pour apprendre tout en vous amusant.

FIN DE LA SECTION IV. REVISEZ AVEC VOTRE PROFESSEUR CETTE SECTION AVANT D'ENTREPRENDRE LA SUIVANTE.

REVUE SECTION IV (Review Section Variable IV)

- Le naturaliste vous montrera comment apprendre EN VOUS SERVANT DE TOUS VOS SENS.
- Le renard se sert de son NEZ POUR TROUVER DE LA NOURRITURE.
- Le pic chevelu utilise son bec pour TROUVER DES INSECTES.
- Un exemple d'une classe se servant du sens du goût est LE VINAIGRIER.

VARIABLE IV — Proper Dress and Equipment.
S'habiller et s'équiper convenablement.

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
126		Pic chevelu: "En parlant de nez, voici mon ami le lièvre. . ."
127 128 129		Lièvre: "As-tu bien dit qu'une classe s'en venait au Centre? Oh que je suis inquiet . . . voilà mon nez qui se retrousse encore une fois . . . Pourquoi j'suis inquiet? . . . C'est bien simple pourtant: regardez-moi: j'ai un beau manteau d'fourrure qui me recouvre de la tête aux pieds, qui me garde bien au chaud malgré le froid, et s'il fait vraiment trop froid, je peux toujours me cacher dans un trou dans la neige . . . .
		Pic chevelu: "Oh non mon lièvre, ils sont bien trop intelligents pour arriver mal préparés. .
130	Nous sommes habilles chaudement.	Lièvre: "Eh bien, je l'espère! moi qui ai toujours dit qu'un lièvre CHAUD est un lièvre HEUREUX. Ils ont besoin de bien se couvrir: tuque chaude, mitaines chaudes, et surtout, des bottes chaudes. Qu'ils n'oublient pas DEUX paires de bas de laine et des combinaisons à jambes longues!
131	Aujourd'hui il fait -30°C.	
132		Ils feraient bien de s'habiller comme s'ils s'en allaient dans l'Arctique . . . parce que le vent peut rendre la température beaucoup plus froide ici qu'en ville . . .
		Pic Chevelu: "Quelles sortes de bottes devraient-ils porter, mon lièvre?"

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
133 134 135 136		Lièvre: "Bien .... certainement pas de bottes en caoutchouc l'hiver! ...et puis, surtout pas de bottes à TALONS HAUTS! Tiens, regardez MES pieds: plats, et recouverts de fourrure; je recommanderais des bottes de moto-neige ou des mocassins. Comme je l'ai toujours dit: un lièvre aux pattes CHAUDES est un lièvre HEUREUX. Mais, toi Pierre le pic chevelu, que fais-tu donc pour avoir chaud l'hiver? toi qui ne vas pas dans le sud comme tant de tes amis?
137		Pic chevelu: "Bien voici: j'aime manger un BON petit déjeuner. Cela conserve ma chaleur tout l'avant-midi. Puis, à midi, j'aime bien manger encore: ça me tient chaud tout l'après-midi. Faut dire que mes plumes aident aussi beaucoup à me tenir chaud."
		Lièvre: Si j'comprends bien, ça veut dire que tous les enfants devraient eux aussi avoir un bon déjeuner chaud?
138		Pic chevelu: "Eh oui! et aussi, qu'ils s'apportent un BON lunch .., Pourquoi pas d'la bonne soupe chaude dans un thermos? Autre chose: ils devraient apporter leur lunch dans un sac de plastique, ou mieux encore, dans un sac à dos ou un sac en bandoulière... Comme ça, ils ne le perdront pas... J'ai vu tellement de lunch perdus sur la montagne à cause de sacs de papier qui se sont déchirés parce qu'ils étaient mouillés...et puis les déchets rendent la montagne toute sale!"

VIDEO		
SLIDE NO.	GRAPHICS	AUDIO
139		Narrateur: Naturaliste: "Maintenant que vous savez comment vous comporter au Centre de Nature, je voudrais vous rappeler que vous devez suivre attentivement les directives de votre naturaliste, pour des raisons de sécurité et de conservation.
140		"Maintenant, je vous souhaite un très bonne journée remplie de découvertes! A bientôt!

REVUE SECTION IV. Review Variable IV

- Que fait-on avant de venir au Mont St. Hilaire?

  On s'habille CHAUDEMENT.
  On mange du BON petit-déjeuner.
  On s'apporte un BON lunch.

FIN DU PROGRAMME.