Suggested short title

BEHAVIOR ON FIELD TRIPS

Dave Algar

KINDERGARTEN TO GRADE FOUR BEHAVIOR ON FOREST CONSERVATION FIELD TRIPS

by

Dave Algar

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Science

Department of Woodlot Management,
Macdonald College of McGill University,
Montreal

March 1973

ABSTRACT

Dave Algar
M.Sc. Department of Woodlot Management

KINDERGARTEN TO GRADE FOUR BEHAVIOR ON FOREST CONSERVATION FIELD TRIPS

Ten nature guides conducted 522 field trips through the Morgan Arboretum for primary grade children from the Greater Montreal area. Seventy-eight French and English-speaking schools, located in thirty-five communities of different socio-economic levels, were involved.

To evaluate the field trip program guides assessed children's behavior by tabulating information during field trips and by completing a post-field trip report form. Thirty-nine behavior variables described each group's responses and twenty-eight socio-economic variables their communities.

Conservation principles involving concepts of protection, respect, and safety in a forest were introduced at the beginning of each field trip. Discipline actions and discussions during the outing were used to emphasize these norms. There was little social interaction not involving the forest. Children interacted primarily with the forest and the guide. The two most useful factors for evaluating the success of this program were found to be 1) Interest in Learning from Discussions and 2) Response to Authority and Conservation Norms. Six different factor analyses appeared to show that the factor pattern was stable and that children from communities of different socio-economic levels behave similarly on these outings. These field trips were useful for introducing basic forest conservation principles to 8,000 children regardless of their social class.

ABREGE

Dix guides de la nature ont conduit 522 (cinq cent vingt-deux) excursions scientifiques à travers "Morgan Arboretum" pour des enfants du niveau primaire venant de différentes régions de l'Ile Montréal. Soixante dix-huit écoles de langue française et anglaise situées dans trente-cinq districts de différents niveaux socio-économiques ont participé à cette expérience.

De façon à évaluer le programme des excursions scientifiques, les guides ont analysé le comportement des enfants en cataloguant des informations durant les excursions scientifiques et en complétant une formule de rapport post-excursion.

Trente-neuf variables de comportement ont tenu compte de la réaction de chaque groupe et vingt-huit variables socio-économiques de leurs districts.

Les principes de la conservation comprenant les normes de protection, respect et sécurité dans la forêt ont été énoncés au début de chaque excursion. Les méthodes de discipline et les discussions durant les excursions scientifiques ont servi à insister sur ces normes.

Il y eut peu d'intérêt marqué pour des activités totalement dissociées de la forêt. Les enfants communiquaient principalement avec la forêt et le guide. Les deux facteurs les plus utiles pour évaluer le succès de ce programme sont 1) le degré de participation aux discussions et 2) l'attitude des enfants face à l'autorité et aux normes de conservation. Les analyses de six différents facteurs ont démontré que le comportement des enfants était stable et qu'il ne variait pas avec les conditions socio-économiques de leurs districts respectifs. Ces excursions scientifiques ont surtout été utiles pour inculquer les principes de base de la conservation forestière à huit mille enfants de quelque milieu social qu'ils soient.

ACKNOWLEDGEMENTS

The author wishes to thank the Morgan Arboretum Association for its financial support of this research and the assistance given to the Forest Conservation Field Trip Program.

For their sincere and conscientious work the author warmly thanks the guides who conducted the field trips and collected the data for this study: Rosemary Algar, Lucie de Bellefeuille, Odette Des Rosiers, Jocelyne Downs, Karen Lapsley, Carolyn Moore, Elizabeth Riley, Joan Young, Janet Yuill and Liese Zerter. Rosemary Algar also helped to design the timer pouch, and Winnie Tibbets assisted with the construction of the field trip report form and testing of the research forms and equipment. Carol Bourassa handled the office work very efficiently, accurately and neatly; both the organizing of each school's field trip arrangements and the sorting and storing of the volumes of data. Jan Cadieux assisted with the preparation of the maps in the appendices.

I am deeply indebted to my supervisor, Professor A.R.C. Jones, and Professor J.D. MacArthur, Curator of the Arboretum, both of whom have a wealth of experience about conducting field trips in the Arboretum. I would like to thank Professor Jones for his guidance and his contagious interest in conservation education and Professor MacArthur for his reassuring administration of this program, his attempts at improving my writing, and his enlightening discussions on people, forests, and the forestry profession.

I would like to acknowledge the assistance of Professor Eric Winter for his astute dissertations on education and teaching and

Professor Don Taylor for his patience and much needed advice for the organization of this research and the methods used and invaluable assistance with preparation of the manuscript.

I am very grateful to Mrs. F. Beattie for typing this manuscript and its many drafts.

TABLE OF CONTENTS

		Page
ACKNOWLEDGEMENTS		iii
TABLE OF CONTENTS		v
LIST OF TABLES		vii
LIST OF FIGURES		viii
CHAPTER		
I	PREFACE	
I-1	The Morgan Arboretum	1
I-2	History of the Arboretum Field Trip Program	1
I-3	Outdoor Education Philosophy	3
I-4	Field Trip Teaching Method	4
II	INTRODUCTION	6
III	MATERIALS AND METHODS	44
III-1	The Forest Conservation Field Trips	44
III-2	The Children and Their Communities	49
III-3	Variables Measured	51
	3a) Behavior Variables	51
	1) How the children interact with the guide, the forest, and each other	52
	2) How children initiate and participate in activities	56
	3) What feelings children express about the guide, forest and field trip	57
	4) What problem solving skills children use	57
	5) How much subject matter children cover	58
	6) How children respond to the guides discipline	58
	3b) Socio-economic Variables	64
	1) Language	64
	2) Education Level	64
	3) Dwellings and Population Density	65
	4) Occupations	65
	5) Unemployment	65
	6) Family Structure	65
	7) Income Pattern	66

CHAPTER			Page
	III-4	The Method of Observation	66
		4a) Participant Observation	69
		4b) Systematic Observation	70
IV	PROCEDURE		74
	IV-1	The Training of Guides	80
V	ANALYSIS		83
	V-1	The Method of Analysis	83
	V-2	The Factor Analysis	85
		2a) Five Alternative Analyses	86
VI	RELIABILITY AND VALIDITY		89
	VI-1	Reliability	89
	VI-2	Validity	95
VII	RESULTS		100
	VII-1	Interaction and Discipline Data	100
		1a) Interaction Data	100
		1b) Discipline Data	100
	VII-2	Reliability of Field Trip Report Form Variables	102
	VII-3	Results of the Factor Analysis	102
VIII	DISCUSSION		108
	VIII-1	Reliability of Field Trip Report Form Variables	108
	VIII-2	Results of the Factor Analysis	109
		2a) Factor 1 Interest in Learning from Discussions	110
		2b) Factor 2 Response to Authority and Conservation Norms	112
		2c) Factor 3 Forest Interaction Versus Guide Interaction	112
		2d) Factor 4 Hyperactive Forest Interaction	113
		2e) Factor 5 Excitement Versus Learning	114
		2f) Factor 6 Discipline Not Associated with Antagonism	114
		2g) Factor 7 Indifference	115
IX	SUMMARY AND CONCLUSIONS		116
X	SOME IMPLICATIONS AND APPLICATIONS OF THE RESEARCH		118
BIBLIOGRAPHY			124
LIST OF APPENDICES			138

LIST OF TABLES

		Page
Table 1.	Field Trip Development since 1966 - Morgan Arboretum.	3
Table 2.	Sixty-seven Behavior and Socio-economic variables.	51a
Table 3.	Distribution of Interaction Readings for 519 Field Trips.	77
Table 4.	Thirty-eight Behavior and Socio-economic Variables Used in Alternative Analysis 3.	88
Table 5.	Distribution of Measured Interaction for 519 Field Trips.	101
Table 6.	Distribution of Discipline Actions for 519 Field Trips.	101
Table 7.	Distribution of Reliability Coefficients for Field Trip Report Form Variables.	103
Table 8.	Reliability of Three Measures Used in the Field Trip Report Form.	103
Table 9.	Rotated Factor Loadings for Sixty-seven Behavior and Socio-economic Variables.	104

LIST OF FIGURES

		Page
Figure 1.	Pre-field trip quiz.	48
Figure 2.	Pictures representing the Arboretum forest.	48
Figure 3.	Children - guide interaction.	53
Figure 4.	Children - forest interaction. Variable 1 Passive Observation.	53
Figure 5.	Children - forest interaction. Variable 2 Active Observation.	53
Figure 6.	Children - forest interaction. Variable 3 Expressive Activities.	54
Figure 7.	Children - forest interaction. Active observation using teaching aids.	54
Figure 8.	Children showing whirligig bugs to guide. Variable 21 forest to guide interaction direction.	55
Figure 9.	Operation of timer and pouch.	55

I PREFACE

I-1 The Morgan Arboretum

The Morgan Arboretum is a 600-acre forested area on the west end of Montreal Island. It constitutes the northern part of the McGill Faculty of Agriculture experimental farm at Macdonald College. The property is managed as a recreation area, research facility, conservation demonstration area, bird and wildlife sanctuary, outdoor education laboratory, and for the production of logs, firewood, pulpwood, ornamental trees, maple syrup and Christmas trees. It has four ponds and approximately twelve miles of roads and trails. The main forest types are: sugar maple, maple-basswood-hickory, beech-red maple, grey birch, poplar, hemlock, and pine-beech-hemlock. These stands receive a variety of harvest treatments: strip, clear, selection, or shelterwood cuttings; and improvement cuts such as cleaning, weeding, thinning, and pruning. There are also hardwood and conifer plantations, arboretum group plantings, and a 22-acre ecological preserve. The Arboretum is an extremely useful working model for demonstrating integrated multiple-use.

Recreation, wildlife management, and forest harvesting, are going on compatibly in an area of less than one square mile. The state of development of the Arboretum and its utilization strongly influenced the Department's outdoor education philosophy and field trip program.

I-2 History of the Arboretum Field Trip Program

Field trips have been given in the Arboretum since 1945. Initially the field trips were to familiarize people with the Arboretum and to show them forest conditions and the essentials of private forest management;

however, special interest field trips for schools and other groups were also given. During the late fifties conservation field trips for scout, guide, and other groups were initiated. The regular staff conducted between 20 to 30 group field trips a year, as well as many individual tours.

In 1966, to provide a focus for this activity and to relieve pressure on the commercial sugaring operation, a demonstration sugar house was built and two guides hired to give sugaring-off field trips during March and April. These were oriented to primary grades and nursery schools. The cost was fifty cents per child. The field trips explained the importance of the maple syrup industry in Quebec, the evolution of maple sap collecting equipment, and the process of making maple syrup. The children, many for the first time, tasted maple syrup as taffy on snow.

This program because of its popularity expanded quickly and was the basis and key stimulus for initiating the forest conservation field trip program for primary grades in 1968. It was hoped the program would be financially self-supporting. Children paid 25 cents each (50 cents since 1969). At first, the children walked through the woods with a guide and were exposed to birds, flowers, trees, and the general forest environment. In 1969, a more sophisticated teaching method based on an overall outdoor education philosophy was initiated. In 1970 this research was started to aid in the development of a comprehensive field trip program.

Since 1966 the program has continued to expand (Table 1). With its limited staff, the Department of Woodlot Management has not been able to meet the increasing demand for field trips and for training sessions for leaders and teachers. Other programs in outdoor education are being

offered at Mont St-Hilaire Nature Centre and Arundel Nature Centre. Some school boards and teacher associations (Provincial Association of Protestant Teachers, Protestant Regional School Board of Chateauguay Valley) are actively involved in incorporating outdoor education into the school curriculum.

In 1972, the Ministère des Terres et Forêts, Direction Général de la Conservation came to the Morgan Arboretum Association's assistance and provided $28,900 to operate this program for six months. This is one of five programs the Ministère is currently supporting in the province.

Table 1. Field Trip Development Since 1966 - Morgan Arboretum (Jones 1966, 1967, 1968, 1969, 1970)

	Sugaring Off		Forest Conservation	
Year	Children	Guides	Children	Guides
1966	400	2		
1967	1530	2		
1968	2300	2	2300	2
1969	3000	2	6000	5
1970	3300	2	8000	10
1971	5000	2	9000	11

I-3 Outdoor Education Philosophy

The purpose of the forest conservation field trip program is to motivate urban children to learn about and to appreciate the forest (Algar and MacArthur 1972). For children to be properly motivated they must enjoy the field trip and be totally involved both physically and mentally with the forest. They are encouraged to discover its unique environment in their own way and to come up with their own explanations

of what they are finding and experiencing.

To help children understand this environment, learning situations are provided in which 1) They practise problem-solving and decision-making skills both as individuals and as a group, 2) They deal with problems which have no "textbook" answers and often more than one possible answer, 3) They analyze rationally situations in which they are emotionally involved.

The conservation concepts (norms) taught are 1) protecting the quality of the forest, 2) respecting other people's use of the forest, and 3) heeding outdoor safety precautions. The teaching consists of using these three concepts to regulate what things the children do and how they do them. When a conservation norm has to be enforced the reasons are explained. This approach teaches conservation by 1) actual practice, 2) relating it to the children's interests and behaviour, and 3) demonstrating rational use of conservation principles to determine one's actions.

In this program children are provided with first hand, and often first-time, experiences in the forest. On the field trips children practise a rational way of thinking about the forest. They also experience and participate in a way of living or of doing things which is consistent with a conservation ethic.

I-4 Field Trip Teaching Method

The conservation education teaching method used in this program was adapted from established education theory and practice (Bruner 1961, Wann, Dorn and Liddle 1962, Dewey 1963).

In this teaching method, the guide is a resource person providing pertinent suggestions, information and activities when requested or when

appropriate. Her main duties are: developing rapport with the children, guiding the route of the field trip, stimulating involvement with the forest, encouraging and helping the children to understand their interactions with the forest, and making sure no conservation norms are broken.

The most important feature of the field trip is that the children enjoy it. The children determine the field trip activities and subject matter spontaneously as they go along. The guide listens and observes carefully and then, by asking questions, helps the children relate their conversations to elementary concepts in forestry, ecology, biology, sociology or economics. Conversations about how they feel, and why they feel this way, about the forest are encouraged.

Guides ensure that children generally encounter the following: trees, flowers, fungi, insects, reptiles, birds, mammals, woodworkers and recreationists. The children can respond to these things in their own way as long as they do not contravene the three conservation norms - 1) protecting the forest, 2) respecting other people's use of the forest, and 3) heeding safety precautions. In all cases reasons are given for disciplining. When repeated reasoning doesn't stop undesirable behavior, group pressure, rules, and then rewards or threats are used.

Appendix 1 gives examples of field trip activities and details about the teaching method.

II INTRODUCTION

Understanding natural environments and man's relationship to them is very important. Presently the public does not understand natural resource problems and is ill-prepared to face them. This creates and complicates many environmental problems. All citizens should be knowledgeable and concerned in order for society to solve its environmental problems. This is the overall goal of conservation education.

The public is ignorant of the forest environment and is usually misinformed about issues and conflicts. The public is too ready to believe experts and a major problem is their inability to recognize misinformation and to assess the validity and usefulness of information (Myers 1956). According to Foss (1962) conservation of fish and game is looked upon favourably by the vast majority of the public and sportsmen but they don't know enough about influences which can be detrimental to wildlife in order to act rationally toward problems. The general public cannot identify common birds and animals, let alone identify wildlife problems in the field. Hewston and Franklin (1969) report that most visitors to the Flaming Gorge Reservoir who saw and heard small wildlife (chipmunks, squirrels, songbirds) could not identify them and in many instances visitors had not heard birds nor seen the many small creatures around them.

Peterle (1967) found hunters from an urban background to be very enthusiastic and concerned about preserving game and wilderness but knew little about what was actually involved and were thus ineffective.

Part of the problem is that conservation is usually not taught in elementary or high schools. Even in universities conservation is not

generally taught and where it is, the student exposure is limited; also, most courses are in technical curricula and are not for the general student population (Lively 1958). Basing his information on 450 American liberal arts colleges, Jankowski (1967) found that only 8% had a course in conservation. Lively (1958) reported that many liberal arts colleges felt courses in conservation were not part of a liberal arts education.

The need for good conservation programs in North America is very great. What exactly is outdoor education in conservation?

Smith (1962) using preparation for living as a broad definition of education said the two main responsibilities of outdoor education were: 1) to condition by experience the attitudes and behaviors of people so that they could use outdoor recreation resources wisely, and 2) to provide opportunities to learn outdoor skills, knowledge, and appreciation of aesthetics in order to obtain maximum satisfaction from outdoor leisure activities. He felt outdoor education could help people develop concepts and insights about the natural environment and man's relationship to it. Hutchins (1971) states that saving the natural environment for the use and enjoyment of future generations is at least as important as any task in education today and that this is part of the broad task of leisure education. Wagar (1947) pointed out the need to end superstitions about natural processes and the need for people to understand ecological changes in order to fully comprehend impairment of environments. Wagar felt that nature interpretation was an excellent tool for removing urban ignorance about resource management and world resource problems.

Some of the environmental issues and problems which make outdoor education so important are: safeguarding the quality of life, protecting

natural environments, preventing pollution and misuse of parks, distributing resources and the use of them equitably, and managing resources to fulfill all of society's needs.

An example of the type of conservation problem which arises from the public not understanding the natural environment and man's relationship to it was described by Baker (1958). The wildlife in northern Mexico is in grave danger of extinction due to the reduction of their living space and unrestricted year round hunting by rural people for food and urban people for trophies. No action has been taken to remedy the situation because of the general public's indifference and ignorance about the interrelationships of natural resources. Baker points out that unless a program of conservation education can develop an informed public opinion northern Mexico will lose some of its characteristic wild resources and part of its cultural heritage and economic potential.

The amount of leisure time in our urban society is putting tremendous pressure on the carrying capacity of our parks and wildlands. Preventing damage to parks and maintaining law and order is a serious problem in recreation management (Campbell, Hendee and Clark 1968). Damage to parks through teenage vandalism, destructive play of children, and by ill-informed, unthinking adults is a major problem. Campbell et al point out that urban people have no opportunity to learn behavior appropriate to natural areas. They state that the sheer increase in numbers of campers causes small annoyances to become major problems. Through interviews they found that people felt rules and laws are for others and do not pertain to them. At the same time to maintain privacy in crowded campgrounds people tended to ignore what other people did and not pressure them to follow

rules. The authors found campers generally were either ignorant of rules or did not understand them, partly because rules were created by park administrators to protect the quality of the park whereas campers were more interested in the social aspects of camping and disregarded or couldn't appreciate environmental rules which interfered with their socializing. Campbell et al conclude that the urban population needs more education in care and use of the natural environment and individuals must accept norms of proper behaviour and be committed to them.

The public often perceives behavior problems differently from park managers (Campbell et al, 1968; Clark, Hendee, Campbell, 1971). Clark et al found managers were more concerned about the condition of the natural environment while the public was primarily concerned that park rules did not interfere with their socially-oriented urban behavior patterns. Recreation, especially outdoors, offers varied and fruitful opportunities for self-selected activities with a minimum of conflict with social requirements; however, it is still subject to the overall requirements of safety, sanitation and conservation of the outdoors; it also requires a sense of fair play and respect for others (Frank 1962). Just as it is normal to teach safe procedures for doing things, such as using medicines and drugs, driving, and competitive sports, it should be standard practice to teach how to safeguard the environment and participate safely and wisely in outdoor activities (Stoddard 1962).

It is commonplace for different forest users to be in conflict - preservationist vs. industry, recreationist vs. conservationist, recreationist vs. recreationist. The views and attitudes of nature photographers and bird watchers often come into conflict with those of hunters and fishermen. The heated controversy over the multiple-use management of

Algonquin Park in Ontario is a classic example (Garlick 1969).

The Outdoor Recreation Resources Review Commission's Study Report 21 (1962a) describes these conflicts as sometimes smoldering, sometimes active. The Commission says these conflicts should not be allowed to hold back the rational development of outdoor recreation resources. Resolving these conflicts will require the public to be well informed on issues, have an appreciation of the values at stake, and in order to make the agreed upon courses of action work, be prepared to accept some external behavior controls. Catton and Hendee (1968) referring to the external behavior controls required to maintain wilderness areas feel that more education is needed before people will heed these controls. The reasons for the regulations have to be clear and make sense to them (Catton and Hendee 1968).

The general public does not understand the forest environment or appreciate its intrinsic qualities and yet their actions and attitudes determine how the forest environment is used and managed. Canoeists in the Manistee National Forest of Michigan enjoyed the rapids and wild natural appearance of the shoreline, but they expressed little concern or awareness of severely eroding streambanks along the river (Solomon and Hansen 1972).

Segments of the population are trying to influence the management of the forest environment. Conservation groups, particularly instrumental groups (i.e., groups having a goal) composed of national parks and wilderness users are becoming very effective politically as preservationists. (Harry, Gale and Hendee 1969; Hendee, Gale and Harry 1969). Hendee et al point out that as a special interest group they are not representative

of the general public, but are upper middle class and do not have the general public's point of view. They suggest that more expressive groups (not goal oriented but activity oriented) might be more effective in terms of determining proper use of areas.

Organized groups influence the forest manager's perception of his clientele and the management policies he thinks they want. Hendee and Harris (1970) found that foresters were able to predict correctly two-thirds of their clientele's responses to an attitude and preference questionnaire. Hendee and Harris felt the differences in the other one-third were due to foresters getting excessive feedback from conservation groups and hunting groups instead of park users. Some main biases appeared as underestimating the users' responsiveness to behavior control, overestimating demand for purist policies, overestimating demand for hunting, and assuming the users were very opinionated when they actually tended to be neutral concerning management issues.

To prepare people to deal rationally and sincerely with these issues and problems is the aim of the Arboretum's field trip program. Another very important aspect of the program is to provide opportunities for all children, rich or poor, to experience outdoor recreational activities.

Outdoor education can help prepare people to obtain maximum satisfaction from outdoor experiences. Wagar (1947) and Shomon (1962) point out that the outdoors is not the actual recreation resource but rather how we react to it and how it affects us is the resource, and that if we want more and better recreation we must somehow learn to appreciate natural values. Shomon claims that the number of miles travelled or fish caught are not the most important yardsticks by which to assess

one's vacation, but rather the things learned and experiences deeply felt are more important. One of Shomon's conclusions is that there is a serious need for more interpretative and educational programs. 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 (Stoddard 1962). If in the early habit-forming ages of children there is no acquaintance with outdoor recreation it is difficult for them to make up for this in later years. Thus instead of having the ability and inclination to obtain some of the benefits from outdoor recreation people can easily fall into a pattern of distaste for and non-participation in the outdoors (Stoddard 1962).

Besides providing opportunities for individuals to live intensely and to exercise and mature their physical and mental capacities, outdoor activities provide an escape from urban crowding, noise, smog, and social formalities and thus can contribute to the urbanite's well-being, alertness and ability to live with zest and spontaneity (Frank 1962). Frank suggests that many citizens are dissatisfied with the pattern of urban living and are seeking a more balanced way of living. For example, urban patterns are highly formalized whereas in outdoor recreation they are not and this provides people with opportunities for making autonomous choices and personal decisions and to be responsive and flexible to changing situations. Frank goes on to say that these kinds of activities in the outdoors require a certain amount of self-confidence, courage, and skills and that one of the greatest obstacles to participating in outdoor recreation may be not having had the opportunity to experience outdoor activities early in one's childhood.

Gans (1962) argues that outdoor recreation can provide satisfying leisure behavior if people are predisposed to enjoy such recreation and that the recreation will be more diversified for those people who have been well educated - that is, exposed to many different activities and trained in making choices.

Outdoor education for safety, survival and group living is as important as any classroom routine (Nash 1962). Nash reasons that freedom of choice is an important aspect of filling leisure time in that individuals must select and balance activities from good, better, best and between that which is harmful and that which is helpful. He rates leisure activities along a continuum from acts against society to excesses of activities, antidotes to boredom, emotional appreciation, active participation, and finally to creative participation. He feels that children learn more and develop better through play and that education utilizing play experiences can guide youth to enviable goals.

To be fair and to fulfill these objectives properly, all children should have equal opportunity to have these experiences. The children who come on these conservation field trips are from communities all over Montreal Island. Socio-economic descriptions of these communities are very different (Montreal Council of Social Agencies 1968). These field trips should be effective with all these different groups of children. This study was undertaken to assist in evaluating the effectiveness of this conservation program.

It is concerned with describing the behavior of children on these field trips. The field trip is designed to be a play situation. Seagoe (1962) defines play as spontaneous activity with a fun element. On

these field trips the criteria that children enjoy themselves, i.e., have fun, is the most important guideline. Another important feature is that children choose their activities spontaneously as they go along. This choice of fun activities and fun behavior in the forest puts this study in the field of leisure research concerned with outdoor recreation.

Groups of children do behave differently on these field trips. In a paper discussing this project MacArthur (1969) reported that different groups of the same age had different interests.

Some children are very interested, attentive to the guide, and quick to interact with the forest, while other groups are blasé, indifferent, and still others hyperactive and hard to control. Some groups are very respectful toward the forest whereas others actively damage plants and animals.

From several years' experience with conducting these field trips and from discussions with other people working in conservation education, it seemed very plausible that behavior on these field trips would depend on which community the children came from.

There is convincing evidence from the field of leisure research that some outdoor recreational behavior is dependent on such factors as socio-economic status, income, education, occupation, population density, and suburban versus urban residence. Urban life influences attitudes toward outdoor recreational activities. Not all elements of society seek the same recreational activities or the same satisfactions from natural environments. Some attitudes seem to be associated with certain activities and socio-economic characteristics.

Outdoor recreation and attitudes toward it must be considered within

the overall context of urban life (Hewes and Hammett 1962). Hewes and Hammett note that in North America during the last 200 years recreation patterns changed markedly under the impact of social changes. In frontier days the out-of-doors was the setting for work and the crowds, excitement and entertainment of the city epitomized leisure-time refreshment. In the early eighteen hundreds the emphasis was on work, not leisure. The Puritan movement stressed cultural improvement. In the late eighteen hundreds steamship and railroad travel stimulated vacations. In the early nineteen hundreds public transportation assisted the development of amusement parks and attendance at sporting events. Bicycling began at this stage and with it the public started utilizing more fully the open spaces around communities for activities such as picnics. Travelling recreation under canvas was also big: circuses, medicine, science, music and cultural shows. These brought excitement into the country and rural residents would visit and camp nearby. Theatre and vaudeville developed at this time. Swimming (for a strong and healthy body) was a major pastime.

Then the automobile, telephone, radio, movies and later television broke the isolation of rural life and brought entertainment to everyone at low cost and made it a daily part of everyone's life. The change in the economy, annual vacations with pay, shorter hours of labour, higher personal incomes, the marked shift from rural to urban living and the pressures of urban living, as well as the educational policy of teaching music, literature and how to play sports, combined to create a demand for recreational activities during leisure time. Attendance at sports events and concerts has increased considerably and so has the weekend and summer exodus from cities to open countryside for recreation and a

change of pace. National and provincial parks are being inundated with campers.

Campers do not seek the same types of experiences or the same kinds of facilities; some want all modern conveniences, sociability and the security of other people, some want the solitude of truly wild surroundings, and others want only as much wilderness as is available by car (Wagar 1963).

Environmental conditions peculiar to urban centres tend to serve as stimulants for recreational activity; conditions such as monotony of a sedentary existence, specialization of occupations, high concentrations of population, pressures of work and excessive noise, institutionalization of activity, pollution of the environment and frustration with the urban system (Northeastern Illinois Metropolitan Planning Commission 1962). This Commission says the purposes of outdoor recreation in a highly urbanized city are as varied and complex as the type of individuals who participate in it, but activities can be fitted into two broad categories - 1) activities undertaken as the result of circumstances in which people find themselves, and 2) activities to attain a specific goal or end. These goals can be physical or mental well being, social acceptance, forming group relationships or solitary reflection to find out about oneself.

Meuller and Gurin (1962) report that people ranking high in outdoor recreation activity are more likely to rank high in other leisure activities and that watching television as a pastime is decidedly unrelated to outdoor recreational activity. They feel that outdoor activities offer an opportunity to develop physical and manual skills, visit and interact with friends and family in a fun, relaxing atmosphere and an opportunity

to communicate with nature. Meuller and Gurin found national park visitors usually want to enjoy the scenery, relax and are not that interested in organized activities. The major characteristics of this group of people are that they have more than one week of paid vacation annually and they have a high yearly income.

Andrews (1965) says that the amount of available income and leisure time are important determinants of outdoor recreational behavior and that people want to escape from complex and routine group pressures and desire to reduce the number of formal contacts with large numbers of people. They want to simplify life decisions, to develop limited isolation and insulation from social contacts and to increase the number of informal primary associations in their life. Andrews asserts that although people want to escape from a complex world, most do not want to be without modern facilities and conveniences. Green (1964) claims this exodus is partly to experience the supposedly superior values of the past. Hendee (1969a) feels the two main aspects of outdoor recreation are to get away from it all and to reduce social contacts with others for a while; but that different groups of people do this in different ways; for example, urbanites would participate in car camping, walking or driving for pleasure, while rural residents would participate in more rigorous forms of primitive camping.

Visitors to Canada's National Parks look on them as areas in which to preserve forests and wildlife, and second to appreciate the wonders of nature; their activities are of a passive relaxing nature (Department of Indian Affairs and Northern Development 1966a). Lime and Cushwa (1969) found that auto campers in the Superior National Forest were seeking a

remote or wilderness-like area that afforded a maximum contrast to their urbanized living and were attracted by the natural atmosphere of the park.

In their study of wilderness users, the Wildland Research Centre (1962) found the two main appeals of the wilderness camping experience were aesthetic-religious and exit-civilization. People espousing these values were from large cities; mainly church-goers favoured the first value and non-church-goers the second. Other values were health, mainly older users; sociability, primarily a middle-age group with middle incomes; and pioneer spirit, mostly young men from small towns. The more experienced wilderness campers were less interested in sociability and more interested in the challenges of nature. Wilderness travelling is usually done in pairs or small groups and these social relationships are an important part of the experience as are the challenge and fascination of nature, the solitude, the refinement of sensory abilities and the challenge of the risks and hazards involved (Wildland Research Centre 1962). The report of the research centre points out that not all members of society would be interested in or oriented towards wilderness camping since it requires a good deal of physically hard work, physical discomfort, good physical conditioning, knowledge of woodcraft, and confidence in one's own resourcefulness. Catton and Hendee (1968) emphasize the social aspects of the wilderness experience such as seeking respite from impersonal social contacts and strengthening bonds among close friends and families. They add that the diffusion of wilderness values through personal relationships is being accelerated by outdoor clubs and groups.

Forest activities in the Morgan Arboretum are primarily associated with the aesthetics of the area. Inhaber (1972) reports that of the total

activity he measured 30.6% was related to pure aesthetics (quiet solitude) and 44.6% was aesthetic activity (walking for pleasure). Other activities were primarily winter activities like snowshoeing, tobogganing and cross-country skiing. The clientele of the University of Michigan Arboretum were interested in the area's privacy and apparent lack of people (Twight 1968). Users of the Morgan Arboretum feel the area should be kept natural and that conservation norms should be left up to individual members to be enforced. They feel the Arboretum is a recreational playground and environment to be appreciated (Inhaber 1972). Their attitudes toward conservation are typical of conservation groups and organizations which are upper middle class; in fact, conservation is essentially an upper middle class social movement (Harry et al 1969, Hendee et al 1969, Devall 1970).

Not all forest users and groups in society view the forest environment the same way. There is competition between appreciative users (bird-watchers, photographers) who are mainly highly educated urbanites and consumptive users of wildlife (hunters and fishermen) who tend to have rural backgrounds and be more representative of the general population in terms of education and social class indicators (Hendee 1969b). In a study of recreational use of private land in eastern Maine, hunters differed from fishermen, campers, vacationers and picnicers in that they were more critical of land management and less willing to pay fees (Stewart 1963).

Lapage (1967) found that campers at private campgrounds were different from those at public parks. Private campground campers had more money invested in equipment and the majority of these campers were probably not in the woods to follow Thoreau's ideal of living simply and alone but were more interested in socializing with other people and being gregarious.

There are social class differences in the use of leisure; for example, upper classes, if provided with more leisure time, are likely to want to use it to read, study, or work at something around the house, whereas the lowest social classes would want to loaf, rest or watch television (White 1955, Clark 1956).

Webber (1962) claims outdoor recreation is related to the daily patterns within each subculture and the types of recreational activities people choose are at once both a reaction to daily patterns and a reflection of the preferences that stem from the subcultural background in which they developed. Each type of outdoor recreation has validity and importance only as the individual views it in his own social context. Webber goes on to explain how perceptions of the physical environment reflect the structure of one's social environment. In some ethnic groups of low status and income, roles, responsibilities and prerogatives are clearly defined and mutually understood. The physical counterpart would be a rigidly organized spatial environment. Such individuals appear to experience greater psychic comfort when physically close to large numbers of other people who share their social norms and where placement of buildings, roads and facilities is clearly structured, readily comprehended, and compact. This is in contrast to the flexible character of middle-class society which prefers semi-rural physical environments. One group finds spiritual meaning and recreational enjoyment in a wilderness setting; the unstructured environment to another would be without meaning and a potential source of strong personal and psychic discomfort. Webber says different groups may engage in different types of activities with the same consequences for personal development.

Bishop (1970) found three major motives influencing leisure behavior were seeking prestige and status, seeking body activity, and escapism, and that these motives are a consequence of life-style habits and are conditioned by previous learning and situational influences. People from both rural and urban situations who had a lot of social contact in their non-leisure hours placed a higher value on solitude than other people (Knopp 1972).

These studies indicate that attitudes toward outdoor activities and natural environments are influenced by urban living and social class. Thus people in different situations would be predisposed to behave differently or to choose different activities. People with high social class characteristics place more emphasis on the aesthetics of natural environments than people with low social class characteristics who are more interested in using forest environments as a background for socializing.

Outdoor recreational behavior has been found to vary with different regions, suburban or urban residence, and socio-economic variables such as income, education, and occupation. Most outdoor recreation is by people of high social class status, particularly activities which depend directly on an aesthetic natural environment.

Income and social class status can motivate recreational behavior (Sessoms 1963). Meyersohn (1969) summarizing the available information on leisure says that some activities are very clearly related to class level and some are closely associated with education. He adds that occupation, style of life, and social predispositions are important contributing influences as is social support in different economic classes for certain activities. Meyersohn acknowledged that lack of

time and money does prevent participation. Nash (1962) was aware that opportunities for outdoor recreation are unequally distributed; the lower socio-economic groups have too few and too short camping experiences.

The findings of Lindsay and Ogle (1972) support the hypothesis that differences in outdoor recreation activities associated with income and education are due to lack of available opportunities for individuals in low income and education categories.

Mueller and Gurin (1962) state that passive relaxing outdoor activities (sightseeing, picnicing) are the most popular, that water sports also rank high and that participation in more active activities is less. They found urban - rural, and regional differences much smaller than differences associated with income, age, and socio-economic status. As income rises so does participation in outdoor recreation except at the highest incomes where there is a slight decline. Women participate less than men but marital status does not influence participation in outdoor recreation. Active activities decrease with age but passive activities remain constant or increase slightly. Mueller and Gurin found hunting, fishing and horseback riding do not increase with income. Paid vacations were found to be important for high participation in outdoor activities. City people go camping less than suburbanites. Age, sex and socio-economic characteristics accounted for 30% of the variance of the participation in outdoor activities.

They feel that social class differences in life styles and interest patterns could influence choice of outdoor activities. Mueller and Gurin suggest that other determinants might be time available, access to facilities, personal goals and experiences, activities of friends and families

and childhood experiences. Havighurst (1961) feels that leisure activities are more dependent on personality than age, sex, and social class since these parameters account for only limited amounts of the variation in leisure activities.

Activities not related to income are walking for pleasure, fishing and hunting (Peterle 1961, Outdoor Recreation Resources Review Commission 1962a, Peterle 1967); activities increasing for lower than average incomes but leveling off or dipping for higher than average incomes are pleasure driving, attending sports events, picnicing and camping; activities increasing for both lower and higher than average incomes are playing games, swimming, sightseeing and motorboating (Outdoor Recreation Resources Review Commission 1962a).

Mueller and Gurin (1962) report that being married and having children does not represent a barrier to outdoor recreation. It is common for children to participate in outdoor activities (swimming) which parents do not have skill in and do not participate in. Children have learned these activities from friends or in school and outdoor clubs like scouts. The higher the education level of people the more active use they make of leisure time.

Burch (1966) found young children do not necessarily inhibit a family's participation in the more demanding camping styles.

Mueller and Gurin (1962) report specific activities to be more popular in some areas. In northeastern United States skiing and swimming were high demand activities while in the south fishing was more popular and most hiking and camping occurred in the west. There was more picnicing in the western and north central states than in the southern and

northeastern states. They found suburban areas show a somewhat higher participation in outdoor recreation than cities and other areas; however, they feel the relatively high participation by suburbanites is a reflection of their income, education, and occupation.

People living in the city of Chicago were found to place heavy interest on organized and group directed outdoor recreation such as amusement parks and zoos (Northeastern Illinois Metropolitan Area Planning Commission 1962). Important outdoor activities for them were fishing, picnicing and swimming. There was not much hunting because this was too expensive for most and there were no facilities. The Chicago urbanite certainly participated less than suburbanites in outdoor recreation. Comparing the two groups the report described the people in the city of Chicago as having middle and below median incomes, being less mobile, having less accessibility and availability to outdoor activities, living in a higher density area containing less per capita public or quasi-public open space, and as having a greater variety of urban type recreational opportunities available.

Upper and middle income groups participate more in outdoor recreation than do lower income groups. King (1968) reports middle income classes, white collar occupation groups, and upper educational classes are over-represented among camping families. King found that income, age, occupation and education correlated with whether a family camped or not.

Thorsell (1967) found that 50% of the hikers in Banff and Yoho National Parks had a university degree while only 2.2% of the Canadian population had university degrees. Forty-five percent of the hikers' occupations were in the professional category.

Hopkins (1969) stated that almost all outdoor recreation is by the middle and upper middle income groups and a few of the wealthy and that the poor and less privileged in the city experience few of the outdoor opportunities available.

Twight(1968) studying the clientele of the University of Washington Arboretum found the key socio-economic factor associated with the tendency to use an area for its natural qualities was education. Hecock (1970) reports that people identified as having high socio-economic characteristics appear to be drawn to beaches having above average aesthetic qualities.

Hauser (1962) found higher educational and occupational levels associated with greater outdoor recreation activity.

Wilderness users tend to have prestigious occupations and high socio-economic status (Wildland Research Centre 1962). Their report goes on to say that 75% of their sample had college degrees while only 6% of the American population had degrees, and that wilderness users tend to be urban dwellers and born in a city. They also tend to be from upper income brackets.

Inhaber (1972) describing the socio-economic makeup of Morgan Arboretum members found that 73.2% of the members had family incomes greater than $14,000 per year; 86% of the members were university educated; 55.5% had professional occupations; 23.3% lived in the city, and 73.6% lived in the suburbs.

Clark (1956) found the use of leisure varied with different levels of occupational prestige. The most frequent activities of the highest level were attending plays, concerts, lectures, entertaining, playing

bridge, and attending movies, and of the lowest level were watching television, fishing, card games (not bridge), driving for pleasure, and going to taverns and commercial entertainment (zoos).

Burdge (1969) found that the higher occupational categories participated in the greatest variety of activities and that their hobbies tended to be aesthetic and educational in character while the middle occupational level hobbies tended to involve a skill while the lowest occupational level hobbies tended to be a more functional part of daily living; for example, repairing car, fixing house up.

One study found that active leisure activities, except for golf, were not associated with occupational groupings (Cunningham, Montage, Metzner, Keller 1970). This study measured just the most common activities such as home improvement, lawn mowing, walking.

Reissman (1954) says higher classes whether based on occupation, income, or education have a greater degree of participation in most activities and lower classes spend more time on television and radio.

Havighurst and Feigenbaum (1959) feel that a person's leisure style is a dimension of his life-style; that is, a home-centred life-style produces a home-centred leisure style and a community-centred life style produces a community-centred leisure style. They found these life styles associated with different classes. Lower class was rarely community-oriented while middle class was about equally represented between home or community-centred life styles. Families with many children were more likely to be home-oriented.

Bishop and Ikeda (1970) found occupational prestige to be a strong correlate of occupational differences in leisure and that leisure patterns

were related to certain characteristics of occupational roles; namely, a masculine-feminine dimension, intimacy of interpersonal relations and energy and involvement required.

Dowell (1967) says there are wide differences between occupational groups and their recreational activities. Hechscher and de Grazia (1959) found executives combined leisure activities (entertaining) with their work and they had trouble making a clear-cut distinction between their work and leisure. Noe (1971) found executives had more leisure built into their work situation and had less outside it while blue collar workers had more leisure outside their work situation and less inside. In comparing three occupations (admen, dentists, professors) Gerstle (1961) reported that in their leisure time admen were the most active, primarily to blow off steam, and that dentists were also quite active but their goal was to relax, and professors were the least active and tended to read a lot in their leisure time. Gerstle (1961) feels setting of the work, nature of the work performed, and norms of reference groups are conducive to particular patterns of leisure behavior.

These studies show that most outdoor recreational behavior varies with socio-economic characteristics and most participation is by upper middle class.

Lower social class groups participate much less and have limited opportunities to participate in and to learn about and to appreciate outdoor recreational activities in a natural environment.

Low income city residents (particularly in central slum areas), recent in-migrants, minority groups, and elderly people have little or no access to outdoor recreation except in neighborhood parks and

playgrounds. These groups have far less than average car ownership and public transportation to many recreation areas is not available. Children of these high density, low income neighborhoods, and even of many middle income neighborhoods, need but do not have access to camp facilities (Outdoor Recreation Resources Review Commission 1962b).

Stone, Schuerell and Koplan (1962) state that most of St. Louis residents participate in non-focused recreation like sightseeing and relaxing. Pleasure drivers tended to be in the middle range of the metropolitan white collar, skilled, and semi-skilled workers, and that visitors to parks around the St. Louis area were overrepresented by professionals and semi-professionals. They go on to say that participation by labourers at parks around St. Louis was only one-quarter of the expected amount.

Service, semi-skilled and unskilled occupations form a low percentage (2.8 - 5.2%) of campers at National Parks (Department of Indian Affairs and Northern Development 1966a). In Banff National Park during 1965 the percentage of campers whose occupations were service, semi-skilled or unskilled was only 6.6% (1966b).

The Northeastern Illinois Metropolitan Area Planning Commission (1962) reports that non-whites have a very low level of participation in outdoor recreation and that this is due to barriers of low income, low personal mobility, and low availability of outdoor recreational facilities around their residence.

Montreal is also not well endowed with parks. The area of large urban parks is only one-sixth of the accepted norm and local and district parks in the affluent western suburbs is two-fifths of the norm and this

figure drops to one-tenth in the poorer zones of Montreal (Fenwick 1969).

The outdoor behavior patterns of low income groups are very different from high income groups. It is crucial that conservation education reach all groups and that it be effective with all groups. This particular field trip program receives children from many different types of communities. It is known that children behave differently on these field trips and that outdoor recreational behavior varies with social class. To evaluate and develop this conservation program it is important to know if behavior on field trips varies with different communities and if the field trips are successful with these different children.

Not very much is known about why these differences in recreational behavior occur.

Using empirical data from exploratory factor analytic studies, theories regarding outdoor recreation are beginning to be put forward. Sessoms (1963) summarized the available information. Patterns prior to 1958 are probably not characteristic of the population now. As age increases fewer activities are participated in and they tend to be more passive. Family patterns are associated with family stage. Car driving and picnicing have the highest participation and water sports are next. The number of recreation pursuits is related directly to income. The type and variety of leisure pursuits is related to occupations and occupational prestige level. Crafts, spectator, commercial, and home centred activities are inversely proportional to occupational levels. Camping and canoeing are upper class; boating, middle and upper-lower class; while hunting, gardening and picnicing are not related to occupational prestige. Urban residents participate more in outdoor recreation

than rural except for hunting which is on the decline. Eighty percent of vacation travel is by auto. Participation in outdoor recreation is increasing.

Some tentative hypotheses have been proposed to explain various aspects of recreational behavior. Hendee (1969a) summarized several theories proposed to explain recreational behavior.

Some theories emphasize cultural differences. Burdge (1969) and Beers (1953) found the rural population to be more conservative than urban dwellers and hence are not positively oriented to recreation since they consider it frivolous and not a good thing. Green (1964) suggests that urbanites may want to recapture through outdoor activities earlier values (pioneer self-reliance) which they feel fit in better with man's nature than domination from urban institutions. Another possibility is that one's perspective of the natural environment may partly explain participation in outdoor activities. For example, occupations which exploit natural resources could influence one to feel that resources are to be used (hunting, fishing), not just appreciated or looked at (Schnore 1966, Hendee 1969b). Outdoor recreational activities are inherent in life styles and values promulgated by different groups (Mead 1962, Hendee 1969a).

A familiarity theory suggests that people seek leisure experiences similar to their everyday lives (Burch and Wenger 1967, Hauser 1962). Urban people walking and driving for pleasure and rural residents participating in hunting and fishing support this theory. Opposing this is a new experience theory - people seek leisure experiences to escape everyday lives through sharply contrasting new experiences. A pleasant childhood

memory theory (Burch and Wenger 1967) claims childhood camping and hiking experiences and adult styles of camping are highly related. This theory has received support from the findings of Peterle (1961) and Hendee et al (1968).

Urbanism may lead to the development of certain characteristics and attitudes - being blasé, less adventurous (Wirth 1938) - and thus influence the amount of participation in rigorous outdoor activities or the style of doing them.

Hauser (1962) proposed two theories. As urban population increases the need for outdoor recreation activities - a return to nature - will increase. As urbanism as a way of life becomes more widespread there will be a diminution in demand for outdoor recreation, particularly activities involving a great deal of physical vigor and relative discomfort.

Lindsay and Ogle (1972) studied two opposing theories. The first, that socio-environmental factors combine to result in proportionately greater preference for public outdoor recreation in those people in the higher income and education groups, and second, socio-environmental factors combine to cause nearly equal preference for public outdoor recreation in all income and education groups, but external factors such as opportunity, allow higher income and well-educated elements of society to fulfill this preference. The findings of their study supported the second hypothesis. Hendee (1969a) expressed similar thoughts when he wrote that groups denied recreation because of residence, poverty, ignorance or segregation, might become participants in available opportunities if these barriers were removed, and that society can influence

participation by manipulating the activities available.

Five theories based on the relationship between past events and subsequent leisure behavior have been advanced based on the idea that participants may approach the same activity on different occasions in a variety of moods, seeking to fulfill different needs (Witt and Bishop 1970). This phenomena helps participants to select the correct activity or to get the most out of an existing experience. The five theories are 1) Surplus energy is left over from normal duties and is available for recreational activities, 2) Relaxation (restoration) is needed to recreate oneself, 3) Emotional tension and anxiety are purged (catharsis) by leisure activity, 4) Recreational activities are substitute satisfaction for blocked motives (compensation), 5) Tasks are generalized, that is, people do the same kind of leisure activities as their work.

Burch (1969) studied competing explanations for patterns of recreational behavior. He said that life-styles produced three social meanings for two different kinds of camping styles - easy access and remote. The meanings were relative amounts of comfort or discomfort wanted, activity milieu of extensive or intensive sociability desired, and whether pleasure was desired from earned money or from a feeling of personal physical effort. He assessed the compensation, familiarity and personal community hypotheses. His data and information supported mostly the personal community hypothesis which states that social issues and psychological drives are filtered and redirected by the social circles of workmates, family and friends.

These are the hypotheses being explored to explain differences in outdoor recreational activities and behavior. Little is known about them

and even less is known about the outdoor recreational behavior of children and how it relates to adult leisure behavior. There is some work that seems to indicate that children from all social classes have the same potential for experiencing outdoor activities but there are class differences in the use of leisure which are a reflection of life style and available opportunities.

Different socio-economic groups have different cultures - different ways of behaving and thinking; for example, attitudes toward education, child rearing practices, property etiquette; children learn these differences in family neighborhood and community groups (Macdonald, McGuire, Havighurst 1949). Upper-class children are often sent to private schools, middle-class families are often concerned that their children be in the right company, while lower-class children are more often left on their own in the streets and are more apt to be in conflict with teachers who are generally middle-class and endorse middle-class values (Macdonald et al 1949). Macdonald et al (1949) report that leisure behavior of socio-economic groups are qualitatively and quantitatively different; for example, belonging to the scout movement is an upper middle-class attribute, upper middle-class have more family activities than lower-class children, whereas lower-class children tend to have fewer organized activities, and have more unorganized play outside in the evenings.

Patrick (1945) found adult leisure activities not to be highly correlated with those of childhood with a few exceptions. One of these was the later pursuit of indoor and outdoor games by men, providing the childhood games were done in companionship of playmates rather than parents.

Boynton and Wang (1944) felt there was no evidence to indicate that the intensity, breadth, and diversification of children's play interests was associated with economic status. They found that on the whole play patterns and preferences were similar for children of different economic status, except for particular items. These were items which required a direct outlay of money, and therefore higher economic status groups had the opportunity to participate in these activities; for example, camping and horseback riding. This was probably also the reason why low status children tended to like games which didn't require any economic outlay since they would be able to participate fully in these.

Fox (1934) found poorer children had less leisure time because of home duties and work outside the home. Fox reported some activities were common to both rich and poor children but a few were different. He felt that he was justified in saying that children from poor homes participated more in spontaneous outdoor play than those from wealthier homes.

Flad (1934) says the use of leisure is conditioned by social class and to some extent by age and sex. He found the lowest class spent more of their time at parks, playgrounds and at commercial entertainment, and the upper middle-class at libraries and lectures. With younger groups the class differences were reflected but were not as clear and were more irregular. Fox feels class differences do not become fixed until maturity. He found 24% of the leisure activities of his sample had been participated in since childhood.

Differences in leisure activities of different socio-economic strata are a reflection of differences in purchasing power, differences in taste derived from schooling and neighborhood subculture and socio-psychological

barriers; for example, social distance (Thomas 1956). Thomas reports that lower class groups are less connected with the boy scouts and have access to fewer leisure resources such as parks and libraries. He says the evidence provides a strong case for all children to have universal access to certain activities and enjoyments and that children need opportunities for meaningful experiences in a variety of potential leisure pursuits.

Wealth and style of living results in the leisure-time activities of economically privileged children being different from other children (Cramer 1950). Most have dancing and music lessons and participate in organized sports. However, Cramer found that many of these activities were disliked since they were chosen by their parents. A characteristic activity of economically privileged children he studied was the number of outside trips taken with their parents. The children unanimously enjoyed these vacations. It was common for the children to be taken out of school to go on these trips.

Studying adolescent leisure in a working class district, James and Moor (1940) found working adolescents spent less of their leisure time on play than adolescents in school. They indicate that the development of leisure activities during adolescence cannot ignore differences in sex, occupation, locality, attitudes and living conditions. Robinson (1936) studied the leisure activities of high school students in a low socio-economic area where one-third of the working population was unemployed. The major activities were reading, listening to the radio, going to movies, and just "hanging around" outdoors or playing unsupervised, unorganized games adapted to city streets.

Hewes and Hammett (1962) state that if outdoor recreation is deemed valuable, it is essential to provide it to children not only for their

immediate enjoyment or health but also to develop tastes and skills that can serve them through life. The cost of camps makes it impossible for low income families to send their children to camp to experience a natural environment. Hewes and Hammett point out that in order for urban children to experience play in a natural environment they must either travel with their parents, go to a camp, or go with an organized group. This results in a serious imbalance in opportunities for different socio-economic groups of children to recreate in a natural setting. Hewes and Hammett feel the government should be directed to provide day camp experiences for children of all economic levels, especially for children in densely populated regions. They also showed that there is a need for day camps for middle income families who although they can afford to send children to camp there are just not enough natural areas available to fulfill the demand. They state that the problems of day camps deserve special study.

Even when a program is available to all segments of society it must still be evaluated and its success with different groups assessed. This brings up the question of what is good conservation education.

Wahletz (1956) asserts that nonfactual propaganda to promote selfish interest under the guise of education cannot be condoned. Westenberger (1970) claims there have been too many attempts to inculcate children with a narrow view of one problem without regard for any ecological ramifications; too much emphasis on teaching conservation in the field of science without regard for the economic and political ramifications; too much emphasis on negative aspects and not enough on constructive conservation activities; and too much concern with identification of specimens and with aesthetics to the exclusion of sound concept development. Westenberger asserts that

a good program would use the conceptual development approach, start at the earliest possible age level, and that concepts would be developed over a period of time through involvement with a great variety of succeedingly sophisticated learning experiences, and that all subjects would be involved. Westenberger points out that merely teaching children to enjoy nature will not necessarily cause them to be knowledgeable conservationists.

Conservation is a way of life, a way of doing things. It involves understanding factual knowledge about ecology, appreciating our dependence on the environment, respecting land, property and the use of it, relating one's beliefs to social action, and being sensitive to the condition of the environment (Dorsey 1968). Lively (1958) agrees that conservation is really a way of life, a way of looking at resources and a way of behaving toward resources, and that an individual must grow into it and grow up to it; that is, as individuals become more advanced they must grasp more advanced ideas of conservation.

Wagar (1958) states that instruction for outdoor living should be concerned with sensitizing enjoyment and encouraging people to think more provocatively rather than following popular concepts which are irrational from a conservation point of view. He stresses the point that elementary and preschool conservation education should instill some of the aesthetics of the outdoors and should stress outward thinking; that is, not to think of one's self only but to consider other things and other people. Because it takes a lot of thinking to be fair, he feels there is a real need to stimulate children to think deeply and objectively.

Webber (1962) asserts that children have to understand where goods

come from, learn how to look at a forest or seashore, and develop respect for our ecological system.

Hutchins (1971) remarks that education in the outdoors is effective only when it results in behavior favourable to the wise use of the natural environment for the future.

These field trips were designed with these ideas in mind; conservation is a way of life; the best way to learn it is to experience it; and the experience should be enjoyable and thought provoking. This seems to be a good way to introduce children to the outdoors and to prepare them to deal with environmental problems. It isn't known if this kind of field trip teaching method is effective. Even though there has been strong dissatisfaction with many programs, rarely have programs been evaluated in terms of conservation education goals, what children do on field trips, and what children get out of the experience.

There has been limited research done on the effectiveness of conservation education programs. George (1967) found the conservation attitudes of high school and college students and adults to be very variable. High conservation scores tended to correlate with extracurricular activities such as summer camp, 4H clubs, boy scout experiences and hiking club activities. He found conservation workshops, conservation education courses and camp experiences could change positively conservation attitudes. He found the changes to be associated with interest, motivation, and exposure to conservation knowledge. He concludes that attitudes toward conservation are more favourable when experiences result in understanding and appreciation of natural resources and that the attitudes are a reflection of the acceptance of conservation knowledge.

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 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. 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.

The behavior patterns forest managers expect or want their clientele to follow are often different from how people actually behave in the forest (Campbell et al 1968, Clark et al 1971). We want children to follow certain behavior patterns on these field trips. It is desirable that their behavior be in harmony with the philosophy of the program and the field trip teaching method. If the field trips need improvement it would be necessary to alter them so that children's behavior is in accordance with the philosophy and teaching method.

It is known that groups of children behave differently on these field trips, that recreational behavior varies with social class, and that the leisure activities of different social classes of children are different. This project is concerned with assessing the behavior of

children from different kinds of communities.

The hypothesis to be tested in this study is that behavior on these field trips varies with the community the children live in. Communities were described on the basis of their socio-economic characteristics as defined by the Montreal Council of Social Agencies (1968).

Actually the common elements of the behavior were assessed. For example, how active or passive, noisy or quiet, excited or blasé, spontaneous or restrained the group's activities and behaviors were. In a study of play as an indicator of cross-cultural and intra-cultural differences Seagoe (1962) states that when comparing the play of different groups the common elements of the play should be used.

Of particular concern are the elements of the group's activities and behavior which are in harmony or disharmony with the philosophy and teaching method of the program. On these field trips children choose their activities spontaneously as they go along.

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 (guide). They state that the activity setting will produce significant and general effects on the social behavior of its participants and that an activity once entered will exclude some potential behavior, necessitate other behavior and finally encourage or discourage still other behavior.

For example, swimming puts a group in a robust social climate where total interaction is high, and aggression and attacking are likely; whereas crafts is a mild social climate where total interaction is lower and

dependency interaction (helping and being helped) is high. In crafts the counselor's help is sought. In swimming the counselor's role is more blocking, attacking and disciplinarian.

On the conservation field trips the children's spontaneous activities and behaviors will influence their relationship with the guide and in what way the group experiences the guide's teaching efforts. For example, is the guide continually disciplining and explaining conservation norms, or having many brief discussions while on the run with a noisy, excited group or continually helping the group to overcome its hesitancy and fear of interacting with the forest?

Almy (1966) in her paper on using spontaneous play as an avenue for intellectual development feels play is a setting for the exercise of incipient intellectual abilities and that when assessing at the cognitive level the kinds of questions one should ask are: what kind of relationships are the children aware of, how creative are they, what can they infer and generalize, what contradictions, attributes and properties do they realize? These are similar to some of the variables measured in this study. As pointed out earlier, these elements of the children's play activities would vary, depending on what activities the children choose, and this will influence what sort of learning experience they will have on the field trip.

The variables (common elements) of the children's activities and behavior are given in total in Appendix 8. They can be grouped into the following categories:

1) How the children interact with the guide, the forest, and each other.

2) How they initiate and participate in activities.

3) What feelings they express about the guide, the forest and each other.

4) What problem solving skills they use.

5) How much subject matter they cover.

6) How they respond to the guide's discipline.

This research was conducted within the structure of an existing field trip program. It is a practical study of a particular kind of field trip. The aim was simply to describe behavior under these conditions; and subsequently to attempt to determine if behavior varies with the community from which the children come.

The study was restricted to the children and schools which actually participated in this outdoor educational program. It did not attempt to single out specific types of schools or children. Essentially it was intended to obtain information that could be applied to upgrade this program. Accordingly the techniques used were selected or designed to be both efficient and economical and easy to incorporate into the field trip method for continuous evaluation of the program. MacArthur (1969), commenting on this study, noted that the findings would form a basis for changes, adjustments and modifications in the program and would help in the critically vital phase of briefing and preparing guides.

A very important point to keep in mind is that if children from various communities are responding differently to this learning experience, the field trip teaching method may be favouring the children from one community over another. To compensate for any differences, a field trip teaching method suitable for all children would have to be developed or different types of field trips designed for children from different

communities. If these field trips stimulate upper middle-class children to appreciate and understand the forest environment but "turn off" lower social class children, this seriously questions the usefulness of these kinds of field trips. They may be just another influence widening the gap between upper and lower-class use and appreciation of natural environments.

Government, industry and special interest groups are developing public education and public relations programs. Many of these have been directed at children. Even though there has been strong dissatisfaction with many programs, rarely have these programs been evaluated in terms of conservation education goals, what children do on field trips, and what children get out of the experience. This research will assist in evaluating the Arboretum's outdoor educational program.

The dual objectives of the research which will accomplish this are 1) to describe some common dimensions of the behavior and activities of children on these field trips, particularly those influencing use of the teaching method, and 2) to test the hypothesis that common elements of their behavior and activities will vary with the children's communities.

The results of this study will help to yield the kind of information needed for the rational planning and development of conservation programs which are useful and beneficial to children from all levels of society.

III MATERIALS AND METHODS

The aim is to evaluate these conservation field trips by describing what happens on them and seeing if this varies with the children's communities. This involved the author in managing the program and at the same time doing research on it.

The field trips were advertised to schools in the Montreal Island area. Schools which were interested made bookings for their classes. Ten guides conducted the field trips using a standard teaching method.

The children's home communities and the children's behavior on these field trips were described. A research report by the Montreal Council of Social Agencies (1963) was used to delineate the communities from which the schools came and to describe their socio-economic characteristics. Most behavior data were collected immediately after field trips by guides completing a field trip report form. Some data were tabulated by guides during the field trips.

These data were factor analyzed to sort out 1) the underlying patterns or basic dimensions of behavior on field trips, and 2) whether or not the behavior data correlates with the socio-economic data, that is, whether or not behavior varies with the socio-economic characteristics of the children's communities. The reliability and validity of the behavior data were estimated to assure they were meaningful and worthwhile.

III-1 The Forest Conservation Field Trips

For research purposes it was important that the availability of the field trips be advertised throughout the entire Montreal region to attract

schools from as many different communities as possible, that field trip procedure and teaching method be constant, that guides be well trained in using the field trip method, and that the forest environment encountered be the same for all groups. The attempt was made to provide the same type of field trip for all groups. Each guide would naturally have her own style of implementing the teaching method, but each used the same field trip procedure and teaching method and had children from all the communities.

The field trips were well advertised and the guides well trained and experienced in using the field trip methods.

During 1969 and 1970, the author organized and supervised the field trip program. During this time, the field trip teaching method (Appendix 1), which had been evolving, was refined and clarified and put into practice on a larger scale and on a more controlled basis. In 1970 a training program for guides was started. Prior to the commencement of the field trip program, the guides underwent a week's intensive orientation and familiarization with the ten trails (Appendix 2) used for the field trips. Guides also had training sessions during the field trip season. They received training on the teaching method, on orienting themselves in the Arboretum and on ways of understanding and interpreting the forest and the multiple-use aspects of the Arboretum. This was done primarily by the author conducting field trips using the field trip teaching method and guides assuming the roles of children. When the field trips commenced new guides observed field trips given by the author and by experienced guides.

This procedure worked very well and was repeated for the 1971 season.

In 1971 (the year the data was collected for this study) we were very fortunate to have one guide with two years' experience and six guides each with one year's experience return to conduct the field trips and collect the research data. Their combined experience totalled just over 1,000 hours conducting field trips and they had already guided, experienced, and endured contact with approximately 7,200 children on these field trips. The three new guides followed the established training procedures; they observed field trips given by the experienced guides until it was felt they were ready to conduct their own field trips.

The field trips were advertised to schools by letter. Schools telephoned and made reservations for a particular day, time, and number of children. This information was recorded on form I and transferred to form II when confirmed (Appendix 3). All the field trips for one day were recorded on form II. Schools were then sent a confirmation slip, directions to reach the Arboretum and instructions on how to prepare for the field trip. (These records are absolutely necessary, otherwise schools may come on the wrong day, at the wrong time, get lost en route, bring too many children, or not have the children properly prepared for the forest. Having this information written down is also useful when dealing with schools that arrive with hundreds of children but have not made reservations.) It was necessary to telephone each school the day before their field trip and emphasize the need for boots and insect repellent. Appendix 3 contains the advertising letter, forms I and II, and confirmation information.

From May 3, 1971, to June 23, 1971, ten female guides, using ten Arboretum trails, conducted two hour field trips for kindergarten to

grade four children from Montreal Island, Laval, Chateauguay, and Ile Bizard. Five girls worked in French and five in English.

Every day I assigned guides to a school and each guide to a trail. Each guide had about the same number of field trips with each grade and on each trail.

Guides met buses at the Arboretum entrance gate and proceeded 1/2 mile to the parking lot. There, the teacher formed groups of 10 to 20 children. To use this teaching method effectively groups cannot be larger than 20. Each guide then took a group and introduced herself. Next, she questioned the children and recorded their interests in the different parts of the forest, and their knowledge about the forest and our three conservation norms (Figure 1). In this discussion the guides used pictures to represent the different facets of the Arboretum forest: 1) trees, 2) mammals, 3) woodsworkers, 4) insects, 5) fungi, 6) reptiles, 7) recreationists, 8) birds, 9) flowers (Figure 2).

The author and several assistants had copied and painted ten sets of these pictures and sealed them in plastic (Figure 2). These pictures were extremely useful since children in these grades cannot read or write effectively. Pictures are bilingual and give children a consistent idea of what to expect on the field trips. It also meant the information given to each group was standardized and similar - which would not have occurred with just a verbal presentation.

Guides then gave the group instructions about how they were to behave and what they were to do on the field trip, that is, not get lost, not take anything home, and not damage anything, to ask lots of questions and to find things in the forest. These preliminaries took 10 to 15 minutes.

Figure 1. Pre-field trip quiz.

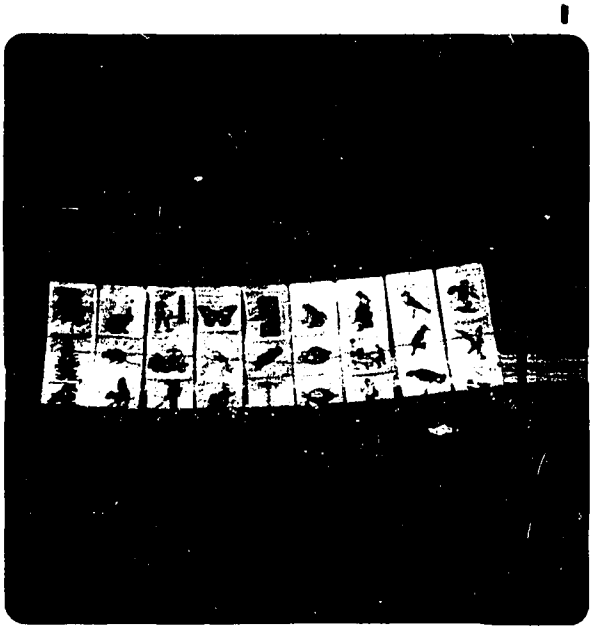
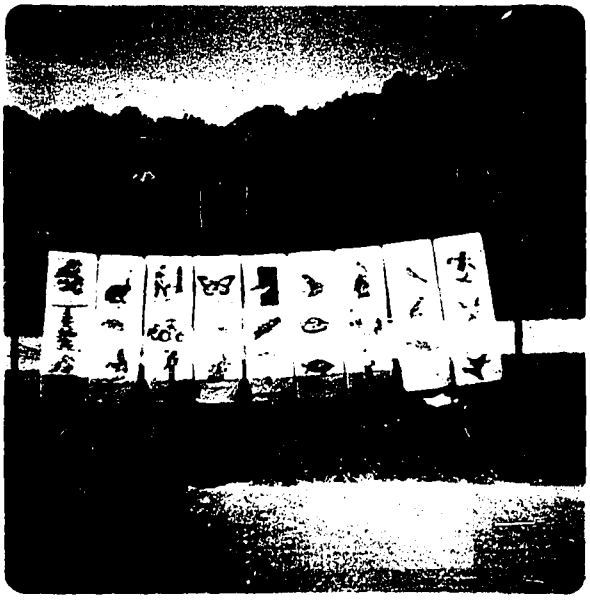


Figure 2. Pictures representing the Arboretum forest.



(See Appendix 4 for text of introduction, quiz and field trip instructions.)

Each guide then took her group over the assigned trail. Distance walked could be varied to suit the group since every trail had alternative routes. All trails were in the south-east corner of the Arboretum. Trails were different but they consisted of the same units - planted forest, natural forest, narrow trail, main trail, road, pond and open land. Therefore, during a field trip all these situations would be encountered. Guides would make sure children had an opportunity to experience the nine different components of the Arboretum forest mentioned in the field trip quiz.

The standard teaching method, previously described, was used plus teaching aids and demonstrations (Appendix 5).

Fifteen to twenty minutes before the end of the field trip guides brought the children back to the parking lot and repeated the introductory quiz. They then directed the bus to the nursery and presented each child with a packaged seedling spruce or pine tree ready for planting. The guides gave the children instructions on how to plant and care for their trees.

This specific type of forest conservation field trip provided learning experiences for children from different communities all over Montreal Island. The children responded differently to this type of field trip. Socio-economically their communities were very different.

III-2 The Children and Their Communities

The children were assigned to a community on the basis of where their school was located. Each community contained several schools. A research

report prepared by the Montreal Council of Social Agencies (1968) was used to define the communities and describe their socio-economic characteristics. Their report divided Montreal Island Region into 60 communities and transformed 1961 census tract data so that it described these communities.

The purpose of this research project was to study the children we actually get on these field trips and was not directly concerned with describing the socio-economic structure of Montreal Island, characteristics of school children across the Island, types of schools in the various communities, or basic research on groups. The object was simply exploratory research on what happens during these field trips.

For this reason the sample was just composed of groups which actually participated in this program. The availability of the field trips was advertised to all schools in the area, but we had no control over which schools would actually send children. All groups were assessed which came on the field trips; this gave a 100% sample.

A broad cross section of communities were represented in this sample. Thirty-five communities varying from the affluent western suburbs to very poor areas in the core of the city were involved (Appendix 6).

These communities provide an overall view of the social and economic structure of Metropolitan Montreal, are the most useful units for community organization, and conform to the community areas used as planning units by the Montreal City Planning Department. The Montreal Council of Social Agencies states that practical uses of these community areas in the uniform collection of data are 1) to use as a tool for studying and analyzing in depth, the structurally interrelated parts of Montreal, 2) to provide a basic demographic background against which to relate

other sources of data, 3) to compare the social and economic needs of one area with those of another area, and 4) to provide a conceptual framework for encouraging the collection of socio-economic, administrative, health and welfare data on a uniform basis. According to the Council's report another research field in which data collection by these study areas (communities) would be valuable, is education. These study areas can serve as research tools by readily providing controlled, matched or contrasting variables over two or more areas; for example, to study effects of a family life education program in a French-speaking low-income area and a French-speaking high-income area (Montreal Council of Social Agencies 1968). In essence, this is exactly how these study areas were used in this research.

III-3 Variables Measured

The data in this study consist of children's behavior assessed by the guides and socio-economic descriptions of the children's communities. Most behavior data were collected immediately after the field trips by guides completing a field trip report form. The report form (Appendix 7) contained sixty-nine behavior variables (Appendix 8); after their reliabilities were checked, thirty-three were reliable enough to use (Table 2 Variables 1-33). Pertinent definitions are in Appendix 9. The socio-economic description of the children's communities contained twenty-eight variables.

III-3a Behavior Variables

The behavior variables in this study describe:

1) How children interact with the guide, the forest and each other,

Table 2 Sixty-seven Behavior and Socio-economic Variables*

Behavior Variables	Socio-economic Variables
1 Passive Observation	40 Population Density
2 Active Observation	41 French Speaking
3 Expressive Activities	42 English Speaking
4 Small Group Forest Interaction	43 Bilingual
5 Small Group Social Interaction	44 Other Language
6 Self Direction Discussions	45 Canadian Born
7 Self Direction Forest Activities	46 Elementary Education
8 Leadership Discussions	47 High School Education
9 Leadership Forest Activities	48 University Education
10 Variety of Discussions	49 Managerial Professional Occupations
11 Discussion Origins	50 Unemployment
12 Forest Activity Origins	51 Families More Than Six Children
13 Depth of Discussions	52 Both Parents Working
14 Depth Forest Activities	53 Average Persons per Household
15 Fight and Attention Getting	54 One Parent Families
16 Distribution of Discussions	55 Income Less Than $4,000
17 Energy Hyperactive	56 Income $4,000 to $6,999
18 Energy Withdrawn	57 Income More Than $7,000
19 Antagonistic to Guide	58 Apartments
20 Indifferent to Guide	59 Dwellings Before 1920
21 Forest to Guide Interaction	60 Dwellings 1946-1961
22 Indifferent to Forest Experience	61 Average Bedrooms per Dwelling
23 Interested in Forest Experience	62 Crowding
24 Ecstatic About Trip	63 Dwellings Major Repairs
25 Describing Observations	64 Dwellings Less Than $7,000
26 Group Use of Concepts	65 Dwellings More Than $18,000
27 Recognition of Problems	66 More Than One Mortgage
28 Concern for Problems	67 Rent Less Than $59/month
29 Flexibility with Problems	
30 Field Trip Content	
31 Protection Norm Unreasonable	
32 Respect Norm Unreasonable	
33 Safety Norm Reasonable	
34 Guide Interaction	
35 Forest Interaction	
36 Social Interaction	
37 Protection Disciplines	
38 Respect Disciplines	
39 Safety Disciplines	

* For definitions see Appendices 8, 9 and 10.

2) How they initiate and participate in activites,

3) What feelings they express about the guide, the forest, and the field trip,

4) What problem solving skills they use,

5) How much subject matter they cover,

6) How they respond to the guide's discipline.

The field trip report form which the guides completed immediately after each field trip contained sixty-nine variables (Appendix 7). Definition of terms used in the report form are in Appendix 9. Only six variables (Table 2 Variables 34 to 39) were tabulated during the field trip.

Only the thirty-three report form variables which proved to be reliable enough for analysis and the six variables counted during the field trip will be discussed in this section. For detailed information on the rest of the behavior variables not used in the report form refer to Appendix 8.

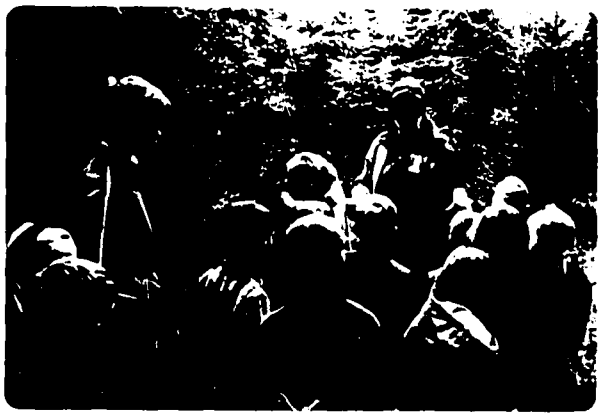
1) <u>How the children interact with the guide, the forest, and each other</u>

The amounts of guide, forest, and social interaction were obtained during field trips by guides counting the number of children involved in guide, forest, and social interaction at $5\frac{1}{2}$ minute intervals (Variables 34 Guide Interaction, 35 Forest Interaction, 36 Social Interaction). See Figures 3 to 7. Each variable was expressed as a percentage of the total measured interaction.

Figure 3. Children-guide interaction.

Figure 4. Children-forest interaction. Variable 1 Passive Observation.

Figure 5. Children-forest interaction. Variable 2 Active Observation.



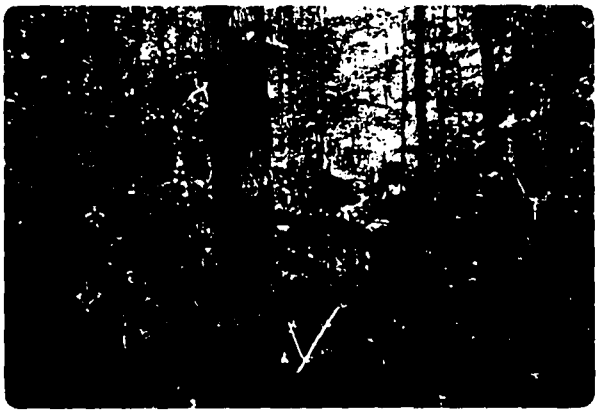


Figure 6. Children-forest interaction.
Variable 3 Expressive Activities.

Figure 7. Children-forest interaction.
Active observation using teaching aids.

Figure 6. Children-forest interaction.
Variable 2 Expressive Activities.

Figure 7. Children-forest interaction.
Active observation using teaching aids.

Figure 8. Children showing whirligig bugs to guide. Variable 21 Forest to Guide Interaction Direction.

Figure 9. Operation of timer and pouch.

Figure 7. [illegible]

Figure 8. [illegible]

$$I = \frac{Xi}{NT} \times 100$$

Where: I = interaction category

Xi = total children in an interaction category for N observations

T = children in the group

N = number of observations

Types of forest interaction are described by variables: 1 Passive Observation, 2 Active Observation and 3 Expressive Activities. Variables 4 Small Group Forest Interaction and 5 Small Group Social Interaction describe the size of groups interacting. Whether children initiated discussion by finding things in the forest or by the guide having to point things out to them, was recorded using Variable 21 Forest to Guide Interaction (Figure 8). All these report form variables were assessed using percentage based on occurrence during the field trip. Later the percentages were grouped into more reliable categories, namely, 1. - 1 to 20%, 2. - 21 to 40%, 3. - 41 to 60%, 4. - 61 to 80%, and 5. - 81 to 100%.

2) How children initiate and participate in activities

These variables are concerned with how spontaneously groups initiate activities, how completely they participate in them, and how well the children function as a group. Also inherent in these ratings is the role the guide has to play to get the group involved in activities and functioning smoothly (Variables: 6 Self Direction Discussions, 7 Self Direction Forest Activities, 8 Leadership Discussions, 9 Leadership Forest Activities, 10 Variety of Discussions, 11 Discussion Origins, 12 Forest Activity Origins, 13 Depth of Discussions, 14 Depth Forest Activities, and 16 Distribution of Discussions). These variables were

adapted from Dimock (1970). All are scales. Guides simply checked the numbered category which most nearly described their group.

3) What feelings children express about the guide, forest and field trip

Feelings and behaviors on which the guides' assessments agreed consistently were indifference, antagonism, interest, timidness, desire for attention and hyperactive and passive behavior. The variables assessing this aspect of behavior on field trips are: 15 Fight and Attention-Getting, 17 Energy Hyperactive, 18 Energy Withdrawn, 19 Antagonistic to Guide, 20 Indifferent to Guide, 22 Indifferent to Forest Experience, 23 Interested in Forest Experience, and 24 Ecstatic about Trip. Variables 19 and 20 were adapted from Dimock (1970). All these variables are measured by noting the number of children exhibiting the behavior; except for Variable 15 which uses a percentage based on occurrence. Later these percentages were transformed into the same five, more reliable, categories mentioned earlier. For the other variables, the figures representing the number of children were transformed to percentage of the group.

4) What problem solving skills children use

The depth and complexity of discussions were described by variables: 25 Describing Observations, 26 Group Use of Concepts, 27 Recognition of Problems, 28 Concern for Problems, and 29 Flexibility with Problems. These describe the level of problem solving skills exhibited by groups during the field trip and provide insight into the complexity of problems discussed. Variables 26, 27, 28 and 29 were adapted from Burton, Kimball and Wing (1960). Variables 25 to 29 are scales. Guides simply checked the numbered category which most nearly described their group.

5) How much subject matter children cover

The number of forest components observed and the depth of discussions about them were rated by Variable 30 Field Trip Content. It is a scale based on the number of topics discussed and involvement in these topics. A score for a group based on an entire field trip is obtained by summing the values for the categories checked.

6) How children respond to the guide's discipline

The amount of discipline required to enforce the three conservation norms (protection, respect and safety) was obtained during field trips by keeping a running tally of discipline explanations or actions. Each conservation norm discipline action was totalled for the entire field trip and adjusted to take into account differences in group size. This produced three variables: 37 Protection Disciplines, 38 Respect Disciplines, and 39 Safety Disciplines.

To make comparisons valid, total discipline actions per field trip were adjusted to a common group size of 15.

$$D = \frac{d}{T} \times 15$$

D = discipline actions (group size 15)

d = discipline actions counted

T = children in the group

This was done separately for the three discipline variables.

Whether the children felt these disciplines were reasonable or not was rated by variables: 31 Protection Norm Unreasonable, 32 Respect Norm Unreasonable, and 33 Safety Norm Reasonable. These were measured by noting the number of children in each category. Later these figures were transformed to percentages of the group.

These thirty-nine variables described common elements of children's behavior and activities on these field trips. These elements will influence how the guides apply the teaching method and thus the type of learning experience the children will have in the forest.

The field trip report form (Appendix 7) was constructed by trial and error specifically to study these field trips. Some scales were adapted from other instruments (Burton, Kimball and Wing 1960, Dimock 1970). Scales and categories were designed and adapted from observations made by guides during the 1970 field trips. To adapt and construct this form the author and a guide observed the same sugaring-off field trips in the spring of 1971, independently completed trial forms, discussed our reasons for differing, and then altered wording and definitions until a form was obtained which could be filled in similarly by different people.

Zander (1951) states that when developing an instrument one starts out with many categories in an attempt to identify what behavior is worth knowing and what is useful, and that as experience accumulates, both as a result of mechanical problems in observation and failures in reliability, categories are dropped or merged with resulting sharper definitions and better reliability. Bales (1950) started out with many more interaction categories than he finally ended up with in his instrument.

As a group, the guides and author improved and sharpened the definitions and limits of the categories and scales. Some items in the report form were grouped to increase reliability if the author felt they could not be validly or consistently delineated by the guides (Appendix 8).

The type of categories and rating scales used in this study have certain advantages and disadvantages.

Carefully developed categories and rating scales can provide reliable and conceptually meaningful data in field studies by 1) providing a common frame of reference for observers (guides), 2) making sure relevant aspects of total behavior will be noted with reliability, 3) being flexible enough to provide needed data within time and personnel limitations which often exist in studies using observers, 4) improving variety and quality of descriptions, 5) helping to correct tendency to one-sidedness, i.e., an observer may lapse into the habit of just looking at things important to him, 6) sensitizing observers to all areas of interaction, 7) providing a clear idea of what to look for, and 8) being able to collect information without disturbing the group (Heyens and Zander 1953, Dimock 1970).

In this study the attempt was to design categories and rating scales to have as low a level of inference as possible. Some categories were all inclusive; others were not. Several dimensions were involved: problem solving skills, emotions exhibited, leadership patterns; therefore, guides had to have several common frames of reference.

There are problems in measurement inherent in the technique. Heyens and Zander (1953) point out there is no single solution to them and the best solutions have to be sought in terms of each study and its objectives. These problems revolve around the necessity of communicating concisely the conditions and procedures for making observations and interpreting them in the framework of a conceptual system (Peak 1953).

A forest field trip is a complex situation in which a variety of factors may affect both the behavior being measured and the process of measurement itself. An investigator hopes to control or keep constant the most important of these influences and hopes the other variations

will cancel out (Jahoda et al, 1951). The types of errors or problems that have to be considered and dealt with when measuring groups have been discussed by Jahoda et al (1951).

1) Variations in rating caused by behavior other than the one being rated. This is essentially a problem of validity. Are we really measuring what we think we are measuring? What is the meaning of the ratings we give? To handle this difficulty as best as possible, categories were designed to be as objective and simple as possible. Guides were involved in formulating meaningful categories and much effort was spent on standardizing their concepts of each category.

2) Differences due to transient personal factors, mood, fatigue, can affect both behavior of the children being measured and guide attitude toward recording behaviors on the report form. If a guide is tired or in a bad mood she might fill the form out haphazardly and in a hurry just to get it over with. Maintaining enthusiasm and conscientious work habits is an integral part of managing a field trip program; in fact, this is a major duty of the person in charge. Team spirit was very good in 1971, and if a particular guide was having a bad day the conscientious, enthusiastic attitudes of the rest of the guides tended to help her make a little extra effort. Also the recording of data became a twice daily habit which was structured into a specific time slot that was quite consistent from day to day. Statistically more important was the fact that a very large sample was used so that most of these transient influences would cancel out and have a negligible effect on the type of analysis used.

3) Situational factors could influence guide measurements and child behavior. Rain, mosquitoes, mud, heat, humidity and wind certainly do

affect the children. But these things are normal on field trips and this is what the investigator is studying, behavior on normally operating field trips. Trails were different but, by and large, they consisted of the same units - planted forest, natural forest, narrow trail, main trail, road, pond, and open land. These different units probably influence group behavior and difficulty of making observations; however, data collected were based on whole field trips which provided similar situations during their course.

4) A very real difficulty is perhaps not all pertinent elements of children's field trip behavior were measured. Fear of things in the forest might have been an important thing to assess. For young children who have never encountered mosquitoes, the experience can be terrifying.

5) Lack of clarity in the measuring instrument can cause differences in measurements. Group agreement, simplicity, concreteness and a high degree of specificity were sought using: the preliminary data as a base, the adaptation of proven instruments, and brief daily group discussions to verify group definitions and to form common benchmarks for different ratings.

6) Different ways of making observations and filling out the report form could introduce errors. Guides were given explicit instructions on how to record data. These techniques were based on the simplest, easiest way of collecting the needed data.

7) Errors in measurements can be a result of blunders or mechanical breakdown. If a clock broke or a pen was lost during the field trip, data would be incomplete. The author checked the day's data each evening for categories missed or marked incorrectly. The guide involved would

then correct this the next day. It was not uncommon for the missed category to be one she had left to come back to because she couldn't decide on it and then forgot to fill it out. We would discuss the problem and then she would make her decision. The category involved would be the item for discussion that morning. Dimock (1970) says it is often useful to complete forms between meetings after one has had a chance to think things over.

8) Calculations have to be done accurately or major errors can result. Transformations and tabulations were double checked. The rest of the analysis was done by computer. The cards were punched and verified by experienced key punch operators.

Borgatta and Crowther (1965) report that 1) the halo effect, in which a rater ascribes all characteristics to a group on the basis of a global judgement, or stereotype, and 2) raters using different parts of a scale to rate the same behavior, are two major measurement problems. They state that intensive training is the best way to overcome these difficulties.

These guides received such training, in addition to which they as a group had a great deal of previous experience observing children on field trips. It is valid to talk of the group's experience rather than an individual guide's experience, since meanings, problems, and frames of reference were defined and discussed as a group. Also the group developed more insight into the different facets of behavior being observed than any one observer could working alone.

A field observer has to rely on his ability to remember, recall and record data later (Whyte 1951). The more involved a person is in an

activity, the more likely he is to remember it. Guides were not only making observations to record later but also to act on immediately, in order to successfully conduct their field trip. Thus they were intimately involved with their observations.

Category and rating scales are very useful in this kind of study. Influences which cause errors in the use of them were controlled as much as possible. These scales enabled meaningful data about behavior of children on field trips to be collected. These data describe dimensions of behavior which will influence how guides are able to use the field trip teaching method. Therefore, the type of learning experience the children have will vary with their behavior.

III-3b Socio-economic Variables

Socio-economic variables which had been shown to be related to participation in outdoor recreational activities were used to describe these communities (Table 2 Variables 40-67, Appendix 10). They were obtained from a research report which described the communities on Montreal Island (Montreal Council of Social Agencies 1968). The twenty-eight variables dealt with language, education level, dwellings and population density, occupations, unemployment, family structure and income pattern.

1) Language

Participation in outdoor recreational activities by different ethnic groups has been shown to be different (Variables: 41 French Speaking, 42 English Speaking, 43 Bilingual, 44 Other Language, and 45 Canadian Born).

2) Education Level

Education correlates very strongly with participation in outdoor

activities, particularly those which depend directly on an aesthetic natural environment (Variables: 46 Elementary Education, 47 High School Education, and 48 University Education).

3) Dwellings and Population Density

These features are different in city core and suburban areas. Participation in outdoor recreation by city core residents is minimal compared to suburbanites (Variables: 40 Population Density, 58 Apartments, 59 Dwellings before 1920, 60 Dwellings 1946-1961, 61 Average Bedrooms per Dwelling, 62 Crowding, 63 Dwellings Major Repairs, 64 Dwellings less than $7,000, and 65 Dwellings more than $18,000).

4) Occupations

Occupation is an important correlate of outdoor recreational behavior. People with professional occupations make far more use of natural environment parks than those with lower status occupations (Variable 49 Managerial Professional Occupations).

5) Unemployment

This category should reflect the economic situation in a community. Certain segments of society are barred from outdoor recreational activities, because of lack of money and mobility (Variables: 50 Unemployment, 52 Both Parents Working, 54 One Parent Families, 55 Income less than $4,000, 66 More than One Mortgage, 67 Rent less than $59/month).

6) Family Structure

Type of camping has been shown to vary with family stage. Leisure-style and life-style do vary with size of family (Variables: 51 Families More Than Six Children, 52 Both Parents Working, 53 Average Persons per Household, and 54 One Parent Families).

7) Income Pattern

Participation in most outdoor recreational activities varies with income. Lower income groups participate very little, either by choice or because of economic barriers (Variables: 55 Income less than $4,000, 56 Income $4,000 to $6,999 and 57 Income more than $7,000).

Although the socio-economic data are based on 1961 figures they are valid for this research. The absolute values of variables are not key to factor analysis; the value of variables relative to each other is more important. The pattern of socio-economic conditions among communities is still the same in 1971 as it was in 1961. There have not been any sweeping changes to shift around the ranking of communities. Communities which had the highest incomes, highest average bedrooms per dwelling, or highest percentage of English speaking, in 1961 still rate highest in 1971.

Outdoor recreational activities vary with different social class groups. Most participation is by upper middle-class groups. Middle-class children have many more opportunities to experience, learn about and recreate in natural environments than lower-class children living in the city core. It is crucial to know whether or not these field trips are effective with all children regardless of socio-economic class background.

III-4 The Method of Observation

The guides rated and tabulated behavior data systematically as participant observers. To fully appreciate the role the guides played, the necessity of using direct observation, and its advantages and difficulties, one must understand the nature of participant and systematic observation.

The investigation of any problem advances by stages; at each stage, research questions differ and so should methodology used to deal with the changing difficulties in collecting data and testing it (Campbell 1970). Observation of groups is a direct method of sampling behavior in a social situation (Dimock 1970). Data for this study utilized participant observation. In 1970, preliminary data were obtained using a narrative report form (Appendix 11). In 1971 data were collected systematically by using a report form (Appendix 7.) which rated behavior and by tabulating some behavior during the field trip. Participant observation has a flexible format which maximizes discovery and is well suited for obtaining descriptive and taxonomic data which can generate hypothesis grounded on descriptive fact (Campbell 1970). Many questions in outdoor recreation are still being formulated and descriptive and taxonomic tasks have hardly begun (Campbell 1970). Behavior of children on forest conservation field trips is among these.

According to Jahoda, Deutsch and Cook (1951) these observational methods are scientific in that they 1) serve a formulated research purpose, 2) are planned systematically rather than occurring haphazardly, 3) are systematically recorded and related to more general propositions rather than presented as a set of interesting curiosa, 4) are subjected to checks and controls with respect to validity, reliability, and precision. Participant (guide) observation provides data which pertain directly to real life behavior situations and permits limited recording of behavior simultaneously with its spontaneous occurrence.

Jahoda et al (1951) define three types of observational methods: 1) participant, 2) systematic, and 3) observation in standardized (test) situations.

They state that participant is most useful in exploratory studies in totally undeveloped fields, and systematic when a little more is known, but the task is still essentially description, testing of crude hypotheses, and generation of more refined hypotheses. Observation in standardized situations would test these refined hypotheses. This project followed this pattern. Its findings should aid in setting up control situations for testing behavior on forest field trips.

The observational methods used were a hybridization of participant and systematic observation. Guides participated in field trips and collected data systematically. They completed a report form after each field trip which described what happened during the field trip; and during field trips, kept track of discipline actions, and at intervals noted interactions.

Jahoda et al (1951) state that if people know they are being observed they may try to behave differently. Because of the purpose of this research and the context of the situation this isn't a problem in this study. The guide in order to conduct the field trip properly has to observe the things she is being asked to collect, and children accept her observational role as a normal part of a field trip. In fact, the way children respond in the Arboretum setting to this observation and other aspects of the teaching method is what is being studied. There are many problems which have to be clearly understood and taken into account to use observational methods properly (Campbell 1970; Jahoda et al 1951).

III-4a Participant Observation

A participant observer (guide) interacts with subjects in the field and makes direct observations. Participant observation is very useful for studying ongoing events since it maximizes the observer's contact in the actual situation (Jahoda et al 1951). It was useful for the preliminary work in this study because the guide was intimately connected with what was being studied and we couldn't enumerate in advance what was relative since hypotheses were not developed. Data was analyzed as it was collected and used to refine and improve the report form variables as study progressed. On field trips it is impossible to take notes on the spot without destroying the spontaneity of the field trip and the normal form of the field trip under study. Therefore, in 1970 first approximation data were collected after the field trip using a narrative report form (slightly structured but open-ended). In 1971 data came from a post-field trip report form and from limited counting data enumerated during the field trip.

Whyte (1951) states a skilful observer may participate with a group of people, be accepted by them, and share their most intimate confidences without having to behave just as they do; an observer just has to be interested and accept them. The relationship between guide and children is like this.

Dimock (1970) says the greatest advantage of observation methods in group programs is the presence of a ready-made observer, the worker (guide), and that it is very important for the worker to develop rapport with the group in order to collect information without disrupting group activity. Developing rapport is standard procedure on these field trips.

The most serious criticism of this method is the validity and reliability of data gathered (Campbell 1970). Most problems are associated with choice of roles; perhaps the observer's role is inappropriate for observing the pertinent data, or may cause the observer to be distracted from the task of observing, or influence the behavior of the subjects (Campbell 1970). It is one of the guide's duties to observe the children and see how they are responding to the forest environment. It is true the children will not behave the same way when there is no guide. But this isn't what is under study. How they behave on a field trip when there is a guide is being studied.

In 1970 much time was spent sorting out the information in the guide's narratives as to what was interpreted and what was observed. Whyte (1951), Jahoda et al (1951), and Campbell (1970) emphasize the importance of this. These narratives formed a basis for identifying appropriate behavior, variables, and scales used in the systematic collection of data in 1971. Peak (1953) says producing these measures depends to an important extent on the flash of insight and hunch founded on knowledge and experience with problems under consideration.

Campbell (1970) used participant observers to observe effectively specific well-defined events in which he was interested, the depreciative behavior of campers. His observers filled out a depreciative behavior report form which described each observed depreciative act by campers in campgrounds.

III-4b Systematic Observation

Systematic observation compared to straight participant observation asks more precise questions, has the content of the problem better

delineated and aims at quantification (Jahoda 1951). The 1970 work enabled data for this study to be collected systematically by guides as participant observers. Systematic observation has been used in field observation of groups in natural settings such as child behavior in clubs and structure of play groups scattered over the property of a summer camp (Zander 1951). Zander defines systematic group observation as a method whereby behavior of a group or its members is recorded, rated or interpreted with the help of specific categories which give observers (guides) a common perception of phenomena being observed.

A main aim of this research is to provide information for improving these field trips; to do this their internal dynamics must be studied. Systematic observation is particularly useful for studying internal dynamics of groups (Zander 1951). The nature of the data collected is determined by the theory behind the research and the limitations of the observer load (Zander 1951, Heyens and Zander 1953). Dimock (1970) reports that direct observation is the most frequently used method of gathering observations about groups. When behaviors are systematically recorded in an objective way this method becomes a reliable scientific tool (Dimock 1970).

The practice most typically followed is end-of-meeting ratings which describe important activities that took place, based on reflection and recall by the observer (Heyens and Zander 1951). In this method the observer (guide) is a human collating machine, observing a number of acts throughout the group, integrating them in her mind and making a judgement as to which point on a number of scales best describes her interpretation of the behavior. The necessity of doing this instead of

actually tabulating the pertinent observations during the field trip is that things happen too quickly to keep track of; in addition, a guide is busy conducting the field trip and the many types of tabulations required would be far too big a load for one person.

All persons do not do equally well as observers. Those that have good personal adjustment and are sensitive to the feelings and emotions of others seem to do best (Heyens and Zander 1953). These two traits were among the criteria used when interviewing guide candidates. From previous experience it was already known that people with serious personal problems bothering them during the field trip season had trouble separating this from their work and conducting quality field trips day in and day out. A candidate's empathy for children was assessed for hiring purposes by telling field trip anecdotes and gauging her response to them. This was done because we felt that guides who had empathy for children enjoyed the work, took it seriously, and were more consistent in conducting good field trips. Another useful technique for selecting guides was asking previous guides who among their friends would be suitable for and enjoy this kind of work. Another stipulation was that any candidate who was known by returning experienced guides (this was most often the case) could not have a personality conflict with any of them in order to be hired on to the team. If there was a conflict, promising candidates were asked to apply again next year. (This wasn't the only reason for asking people to apply again next year.) The author selected the ten guides from about 30 candidates.

When two or more observers are observing and recording in the same problem area they have opportunities unavailable to the lone researcher to compare their findings and check biases (Whyte 1951). If they make

independent records first and then compare, this helps observers find any of their blind spots (Whyte 1951). Campbell (1970) notes that different ratings by two or more observers who are rating the same subjects tend to increase both reliability and validity. Although average ratings by guides for a given field trip were not possible, there was much communication among the group about measurement, frames of reference, criteria used, and borderline cases, both in structured daily briefing sessions and in casual conversations before field trips and after field trip report forms had been completed.

The observational methods used in this study appear to be well suited to the nature of the problem and valid for exploratory research on children's behavior during forest field trips.

IV PROCEDURE

The objective is to describe common elements of children's behavior on these field trips and to test whether common elements of behavior vary with children's home communities. To do this it was necessary to obtain reliable and valid behavior data from field trips and to obtain socio-economic data which described the children's communities. In this case, factor analysis appeared to be the best technique to describe these common elements and to test the hypothesis.

The socio-economic data were obtained after the field trip program was completed by using information taken from the reservation sheets. Most behavior data were collected immediately after the field trip by filling out a field trip report form. Guides tabulated some data during the field trip. It was necessary to check the reliability and validity of the post-field trip behavior assessments made by the guides. Their training as participant observers collecting systematic data is a very important aspect of this study and is explained later in this section.

The operation of the field trip program took precedence over the research, because the findings were to be applicable to the program as it is normally run and the research methods capable of being fitted into the program for annual evaluation. These constraints played a major role in the design of the research techniques and procedures used.

The socio-economic description of the children's communities was obtained by using the information used for making field trip reservations for the schools. A record was kept of which school children on the field trips attended. Using a map and the school's address, the schools were

assigned to their appropriate community. The socio-economic variables of a school's community were obtained from a report published by the Montreal Council of Social Agencies (1968). Each community (study area) contained several schools and their boundaries followed municipal boundaries. The children lived in the same community in which their school was located. These variables describe the socio-economic conditions of the children's home communities.

Behavior data were rated by guides immediately after field trips and limited data were tabulated by them during the field trip. These data were collected in 1971 and were based to a large extent on experience gained from preliminary behavior studies carried out in 1970.

During 1970, preliminary information describing the kind of things that happen on field trips was collected by guides using an open-ended form described in Appendix 11. During the fall and winter of 1971, research equipment, report forms and methods were designed, based on the two previous years' experience and information collected by guides in 1970. These were tested and perfected on sugaring-off field trips during March and April 1971.

Seven experienced guides from the 1970 season returned to conduct the field trips and collect the research data in 1971. During the field trip, limited data were tabulated in the period between the introductory preliminaries and the quiz at the end of the field trip. These data were averaged or added to obtain a value representative of the whole field trip which would be comparable to the data from the field trip report form and suitable for factor analysis.

These data provided six variables: 34 Guide Interaction, 35 Forest Interaction, 36 Social Interaction, 37 Protection Disciplines, 38 Respect

Disciplines, and 39 Safety Disciplines (Table 2).

Interaction data (Variables 34, 35 and 36) were collected at intervals. Every five and a half minutes a guide recorded on form A (Appendix 12) number of children involved in guide, forest and social interaction (see Figures 3 to 7 and Appendix 9). Timers adapted from minute minders were carried in a specially designed waterproof pouch (Appendix 13). A guide could use one hand to open the pouch and operate the clock without having to look at it and disturb her conduct of the field trip (Figure 9).

Before starting the quiz at the beginning of the field trip the number of children in the group was recorded on form A. The guide, after giving the field trip instructions, started the timer. Every $5\frac{1}{2}$ minutes the timer bell would ring, then the guide, while continuing her field trip normally, would count the children in the two categories of interaction which contained the lesser number of children, and reset the timer. At the first opportunity, before the timer rang again, the guide recorded these data in the appropriate place on form A. The number of children in the third interaction category was obtained by subtracting the children accounted for from the total number in the group. This was done either during or after the field trip. This procedure was repeated until the group completed the field trip and returned to the parking lot. Usually this method provided 8 - 14 readings of guide, forest and social interactions (Table 3). However, number of readings varied from 2 to 16. Field trips were not always two hours in length since schools sometimes arrived late, left early, or stayed late. Occasionally a clock would break or a pen would be lost, which would result in fewer readings.

Table 3 Distribution of Interaction Readings for 519* Field Trips

	Number of Readings per Field Trip														
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Number of Field Trips	1	2	4	22	37	37	51	53	80	61	57	47	42	16	9

* Interaction and discipline data not obtained from three field trips.

The number of times the guides disciplined the children with respect to the conservation norms was recorded throughout the field trip. A discipline action is when a conservation norm has to be enforced and explained to the children. A running tally of these using a dot-line notation (Appendix 12) was kept on form A under the appropriate headings (P = protection, R = respect, S = safety).

Discipline data provided three variables for factor analysis: 37 Protection Disciplines, 38 Respect Disciplines, 39 Safety Disciplines (Table 2).

The procedures and equipment used were designed so that they would not interfere with the field trip. This was very important since it is behavior in the context of a normal field trip which is being studied. These data were obtained by simply counting well defined events. Proper training, practice, and attention to procedures were required to do this accurately without disturbing the field trip activities.

Although classifying interaction categories was a strain at times, the data collection procedures assisted guides somewhat in conducting their field trips and completing their post-field trip report forms by consciously forcing them to glance at the entire group's activities every few minutes.

Immediately after every field trip each of the ten guides completed independently a field trip report form. This required about 25 minutes. A guide recorded the statement which most nearly described her group. This form contained 69 items which described ways children could have behaved and things they could have done on field trips (Appendix 7). Appendix 8 defines the behavior variables in the report form. The thirty-three behavior variables from this report form which were reliable enough to be factor analysed are listed in Table 2, Variables 1 to 33.

Every morning, to help maintain uniformity, I reviewed some definitions and related them to situations from recent field trips. Every evening I checked reports for omissions and errors. The guides involved corrected these the next morning. Errors and difficulties were discussed with the entire group.

To determine if the guides were filling the forms out accurately and consistently, a reliability coefficient (Pearson r) was calculated for each of the sixty-nine variables in the field trip report form. Thirty-three variables were found to be reliable enough for factor analysis.

The reliability of this guide-report form method was checked by having guides observe each other's field trips. The field trip guide and the observing guide each completed independently a field trip report form. Fifty field trips were checked and 69 Pearson r correlation coefficients calculated using the 50 pairs of field trip report forms. The rules for observing were:

1) Don't interfere with the guiding of the field trip or talk to the guide.
2) Stay at the back of the group but close enough to the guide to hear her conversations with the children.

3) Don't encourage the children to interact with you.

4) Don't arouse their curiosity or challenge them to get a response from you by being "deadpan" and totally non-communicative.

5) Be reserved and cold if children ask you questions or talk to you. Tell them to talk to the guide.

6) Do not discuss the field trip with the guide until after you have both independently completed your reports.

The guide, observer and author discussed any major differences between the reports. Important points arising from this were discussed with all guides. Every guide observed every other guide who worked in the same language.

Since the research was carried out within the framework of the program and in fact its methods are eventually to become a part of the program, the following procedure was used to sample field trips and check the consistency with which the guides completed the report form.

Which field trips were sampled depended on the vagaries of the field trip program. Had schools cancelled? Were guides available? Did available guides have to do tree planting or other work instead of observing? The five guides working in French took turns observing each other and the five working in English did the same. This was necessary because only a limited number of field trips could be observed. It was not economically or operationally feasible to have one person doing all the observing. Not all girls were fluently bilingual. The program had already been set up so that guides could observe each other's field trips. This is necessary to help maintain enthusiasm and to enable each guide to add to her repertoire of discussion topics, activities, and techniques for handling

discussions with children. The attempt was to have each guide observe every other guide who worked in the same language, an equal number of times, but this was modified by the everyday constraints of operating the field trip program. Whose turn was it to plant trees? Who had to conduct a field trip that day because they hadn't had a grade two yet? Who was needed elsewhere because they could drive? Appendix 14 lists the field trips observed and which guides were involved.

These procedures were incorporated into the structure of the field trip program and can readily become a permanent part of the field trip program. They provided thirty-nine conceptually meaningful behavior variables and twenty-eight socio-economic variables which were suitable for testing the hypothesis. The context of their measurement makes the hypothesis and the research results very relevant and pertinent for assessing the usefulness and effectiveness of this outdoor conservation educational program.

IV-1 The Training of Guides

The training of guides to be participant observers capable of collecting reliable behavior data is a very important aspect of the research procedure. Proper training of observers is very important to obtain the required degree of reliability and validity (Heyens and Zander 1953). Heyens and Zander (1951) described six important aspects of observer training programs:

1) Explain theory and purposes.
2) Before they see the instrument, observers should look at groups to get an idea of what to look for and to realize that they don't all see the same things.

3) At first, observers will find the instrument very complex; they must be reassured, and each item explained and questions answered.

4) Observers can experience and gain added insight into situations by role playing what they will be observing. Discussions of this experience will make it really worthwhile.

5) Observers should have a pilot run on a group or groups.

6) One has to make sure observers are qualified before they start.

Guides were told we were interested in assessing what behavior occurred on field trips so that we could describe what happens on field trips and use this information to improve field trips. Guides were keenly interested in doing this to the best of their ability and took very seriously the objectives of the field trip program and their responsibilities toward taking urban children into the forest for an enjoyable experience.

Guides as a group had substantial previous experience observing behavior on field trips. Three guides were new, six had one year's experience and one guide two years. Their combined prior experience consisted of just over 1,000 hours conducting field trips for about 7,200 children and substantial practical experience with the behavior variables being measured since the variables were based on their observations from the previous year.

Because of their prior experience, field trip anecdotes could be used to describe categories and form common benchmarks for different points on scales. Questions asked in these group discussions were very apropos and showed a great deal of insight because of the guides' previous experience.

During their training for leading field trips guides would role play

children on a field trip on which I was the guide. This experience was also useful for developing observational skills. The three new guides observed field trips until it was felt they were ready to conduct and collect data on their own field trips. When they were observing other field trips in this initial training period, they collected data and compared theirs with the experienced guide who conducted the field trip.

The training and preparation period for experienced guides was one week and for new guides the average was about $2\frac{1}{2}$ weeks. The training to collect data was welded into their training for conducting field trips so the two were closely associated.

Specifically guides memorized required definitions (Appendix 9). Using field trip anecdotes, I explained each statement in the field trip form so that guides could relate them to actual situations. I informally tested guides by telling anecdotes and having them check the statements which best described the anecdote. Next I conducted a field trip which the guides observed. Everyone completed a field trip report and then we discussed each item and our reasons for checking statements. The three new guides observed field trips of experienced guides and collected practice data until they were ready for their own field trip.

V ANALYSIS

V-1 The Method of Analysis

Factor analysis is a statistical technique often used in exploratory studies to identify common elements, factors or dimensions in fields of study where little is known. The technique is very useful but there are difficulties with it and care has to be taken to use it properly.

Meyersohn (1969) in his review of leisure research states that the sociology of leisure is still in the stage of reporting survey data and correlating these data with the conventional demographic variables. He found there was little work done on groups, most of the work being done on communities and national samples. He states that the field requires extensive empirical work; the empirical data is needed, even if it has little to do with the development of a theory, to provide some basis for the gradual establishment of a sociology of leisure and the formulation of hypotheses.

Much of this early work related variations in outdoor activities to class levels based on education, income and occupations as well as place of residence, city core versus suburban residence, and the life-styles and social support for different activities associated with different sub-cultures. A technique often used in these exploratory studies to identify variables, factors, and stable dimensions of leisure activity and socio-economic characteristics was factor analysis (O.R.R.R.C. 1962a, Hendee, Catton, Marlow and Brockman 1968, Bishop 1970 and Witt 1971). These exploratory studies helped to delineate the field and to generate some hypotheses which are presently being tested. Research concerning outdoor leisure activities of groups of children is still in the exploratory stage.

The following explanation of factor analysis was obtained from Adelman and Taft Morris (1967).

Factor analysis is useful for simplifying a mass of data and discovering its underlying regularities. It reduces the original descriptive variables to a smaller number of independent factors. From these factors the original data can be more easily understood. A factor contains groups of variables which the analysis has shown to be closely related. The method also gives the relative importance of each variable to the factors.

Factors are formed from observed variables in the following way.

1) Variables most clearly intercorrelated are combined within a single factor.
2) The variables allocated to a given factor are those that are the most independent of the variables allocated to the other factors.
3) Factors are formed so that the percentage of the total variance attributed to each successive factor is maximized.
4) Factors are uncorrelated with each other.

Coefficients which relate observed variables to each factor are called factor loadings. They play the same role in factor analysis as do regression coefficients in correlation analysis.

To refute the hypothesis that behavior of children on field trips is a function of their home community, the factor analysis must allocate the behavior data and socio-economic data to different factors.

Measurement errors, spurious correlational relationships, and subtle differences in factor patterns can limit the usefulness of factor analysis as an interpretive tool (Witt 1971). An investigator has to take into consideration the difficulties inherent in this technique. Peak (1953) lists these as:

1) Solutions obtained are not unique, factors uncovered are a function of the hypothesis of the investigator, specifically, the variables he chose to measure.
2) Factors found may be due to anything which introduces correlation between variables (other things than a fundamental process).
3) Factors identified are a function of the sample used and conditions of observation.
4) Since the data of factor analysis are tables of correlation coefficients, the assumptions underlying these statistics are very much involved in the analysis.
5) Interpretation and meaning of the factors rests largely on the investigator's experience in the field and knowledge of the variables.

Different types of factor analysis and such things as the number of factors rotated, the characteristics of the diagonal elements, the number and type of rotations can influence the factor pattern (Lawley and Maxwell 1963, Horst 1965).

This is why such care had to be taken in the measurement of behavior on the field trips and establishing the reliability of the raw data.

V-2 The Factor Analysis

The aim of the factor analysis is: 1) to sort out the underlying regularities (common elements or basic dimensions) of children's behavior on these field trips, and 2) to test the hypothesis that behavior of children on field trips is a function of their home community.

To support the hypothesis, behavior and socio-economic variables must have high positive or negative loadings on the same factors. To

refute the hypothesis the factor analysis must allocate the high loadings of the behavior and socio-economic factors to different factors.

Data for this research were obtained from 522 field trips involving 8,000 children from 78 schools in 35 communities situated in the Montreal Island region. A computer program BMDX72 (Dixon 1970a) was used to factor analyse these data, 522 cases (field trips) each described by 39 behavior and 28 socio-economic variables. From the raw data a correlation matrix was calculated (Appendix 15). Then a factor analysis was performed on this matrix to simplify it. In this factor analysis twelve factors with eigenvalues greater than 1.0 were orthogonally rotated to varimax criterion seven times. Communality estimates were squared multiple correlations.

To check the stability of the factors obtained in the original analysis, the data were factor analysed several different ways by varying sample size, variables used, and factor analytic procedures.

V-2a Five Alternative Analyses

Alternative Analysis 1

All field trips (214) from the more affluent communities (Appendix 6) were factor analysed using 39 behavior and 28 socio-economic variables and computer program BMDX72. Fourteen factors with eigenvalues greater than 1.0 were orthogonally rotated to varimax criterion five times. Diagonal elements were unaltered.

Alternative Analysis 2

Field trips (147) from the poorer areas of Montreal (Appendix 6) were factor analysed using 39 behavior and 28 socio-economic variables and computer program BMDX72. Fourteen factors with eigenvalues greater than 1.0 were orthogonally rotated to the varimax criterion five times.

Diagonal elements were unaltered.

Alternative Analysis 3

All 522 field trips were factor analysed using BMDX72, except this time 23 behavior variables and 15 socio-economic variables were used (Table 4). The behavior variables were selected on the basis of having the largest loadings on socio-economic factors 8 to 12 inclusive (Table 9)and the socio-economic variables selected for having the largest loadings on the behavior factors 1 to 7 inclusive (Table 9).

Ten factors with eigenvalues greater than 1.0 were orthogonally rotated to varimax criterion six times. Diagonal elements were unaltered.

Alternative Analysis 4

All 522 field trips were factor analysed using 39 behavior variables and BMDX72. Ten factors with eigenvalues greater than 1.0 were orthogonally rotated to varimax criterion six times. Diagonal elements were unaltered.

Alternative Analysis 5

All 522 field trips were factor analysed using 39 behavior variables and computer program BMD03M (Dixon 1970b). Twenty-three factors with eigenvalues greater than 0.01 were orthogonally rotated to varimax criterion ten times. Diagonal elements were maximum absolute row values for communality estimation.

If these alternatives yield the same pattern of factors as the initial analysis, the factor structure can be considered stable and the results of the initial factor analysis meaningful. The results of the factor analysis will be a set of factors which 1) represent basic dimensions of children's behavior on these field trips, and 2) either affirm or negate the hypothesis that common elements of children's behavior on field trips varies with their home community.

Table 4 Thirty-eight Behavior and Socio-economic Variables Used in Alternative Analysis 3

1	3	Expressive Activities
2	4	Small Group Forest Interaction
3	5	Small Group Social Interaction
4	6	Self Direction Discussions
5	10	Variety of Discussions
6	14	Depth Forest Activities
7	16	Distribution of Discussions
8	17	Energy Hyperactive
9	18	Energy Withdrawn
10	20	Indifferent to Guide
11	21	Forest to Guide Interaction
12	22	Indifferent to Forest Interaction
13	23	Interested in Forest Experience
14	24	Ecstatic About Trip
15	25	Describing Observations
16	26	Group Use of Concepts
17	30	Field Trip Content
18	33	Safety Norm Reasonable
19	34	Guide Interaction
20	36	Social Interaction
21	37	Protection Disciplines
22	38	Respect Disciplines
23	39	Safety Disciplines
24	41	French Speaking
25	42	English Speaking
26	48	University Education
27	49	Managerial Professional Occupations
28	51	Families More Than Six Children
29	52	Both Parents Working
30	55	Income Less Than $4,000
31	56	Income $4,000 to $6,999
32	57	Income More Than $7,000
33	59	Dwellings Before 1920
34	60	Dwellings 1946-1961
35	61	Average Bedrooms per Dwelling
36	63	Dwellings Major Repairs
37	64	Dwellings Less Than $7,000
38	65	Dwellings More Than $18,000

VI RELIABILITY AND VALIDITY

Throughout this study constant reference has been made to reliability and validity. The data must be reliable and valid in order for the factor analysis to produce meaningful and accurate results. In order to have confidence in the results, reliability and validity were assessed.

VI-1 Reliability

Shuster (1971) successfully adapted the Minnesota Teacher Attitude Inventory for use in a study of leadership styles of camp counselors. The inventory maintained its reliability and validity. Dimock (1970) reports that his survey form appears to be a reasonably accurate instrument for measurement purposes since the combined rating of five observers using it had a high reliability which was significant at the .05 level. Ratings by supervisors, advisers, and members also correlated significantly.

According to Peak (1953) there is not a reliability of an instrument but a global reliability of the instrument, its procedures, conditions of use, observers, and sample. For this reason reliability and validity of the field trip report form were assessed.

Reliability is a measure of how consistently measurements can be obtained. When a measure is reliable, it simply means that the important determinants of the measured event, instigating stimuli, variables in the reacting individual (group), observational techniques, and procedures for handling observations and summarizing them are sufficiently under control to reproduce results within stated limits (Peak 1953).

Training is very important (Borgatta and Crowther 1965). When an instrument is reliable then the observers have been trained to interpret

their instructions similarly and have practised enough to develop the motor and perceptual skills necessary for proper categorizing (Zander 1951). As explained earlier, the guides were very experienced. The design and implementation of their training and the use of the report form were based on eliminating or downgrading problems in reliability and validity.

Borgatta and Crowther (1965) state reliability should be as good as possible but it can be just so good and that the important criteria is how much difference to the testing of the theory will the inconsistencies make.

There are many problems which can cause measures to be unreliable. Zander (1951) lists five: 1) Observers may not have common and adequate frames of reference. 2) Theoretical variables may have several dimensions and observers may use different cues to rate behaviors. 3) Observers may be predisposed to make ratings differently. 4) Observers may bias their ratings because of their own needs and values. 5) If there are too many categories, the observers will become fatigued and rate inconsistently.

Borgatta and Crowther (1965) note that 1) categories used infrequently will have more errors, and 2) groups may behave inconsistently and categories may not be relevant to this behavior.

Peak (1953) states that 1) observers may just rate extremes and observations will pile up in end categories, and 2) observers may check one item and then automatically check other items to correspond to it.

Reliability depends very much on the training of observers (Zander 1951, Heyens and Zander 1953, Whyte 1953, Borgatta and Crowther 1965, Campbell 1970). Campbell (1970) asserts that reliability and validity

depend on the clarity with which points on a rating scale are defined, the training and competence of observers, familiarity with people being rated, and heterogeneity of people being rated. The guides, as stated previously, were experienced, competent, and received intensive training. The ten guides were selected from thirty candidates. The criteria for selection were their empathy for children, willingness to work rigorously outdoors, ability to get along with others, and participative leadership style. Seven of the group came into the study with substantial prior experience conducting field trips and observing children. During the project they gained about another 1,000 hours' experience with 8,000 children.

Peak (1953) says reliability requires a determination of consistency for repeated measurements of the same individuals or group of individuals. She points out that usually one can't do many repetitions as this affects the characteristics one wants to measure; in practice, one makes two measures of each individual (field trip) and enough measurements are obtained by increasing the number of individuals (field trips) rather than the number of measurements of each group. Then some measure of agreement is calculated. This was the situation in this study.

This involves two assumptions: 1) the relevant behavior of the individual (group) being measured has not changed between measurements, and 2) there are no differences in measurement procedure (Peak 1953). It is an ideal situation to have both these assumptions fully satisfied; in practice they are only fulfilled to a satisfactory degree, no matter what method one uses: test-retest, equivalent forms, or split-half (Peak 1953). She goes on to say the most appropriate procedure depends largely upon

the specific nature of the measuring process.

The first assumption was fairly well satisfied in this study since the same field trip (individual) was observed at the same time. As for the second, procedures were well outlined and guides well trained, but differences in the role of the guide (participant observer) and the observer probably caused some items to be rated differently. Observers at times would not hear personal conversations between the guide and a child and might have a tendency to rate differently any items related to these conversations.

Heyens and Zander (1953) report the most frequent statistic used in appraising degree of agreement between observers has been the correlation coefficient. Percentage of agreement between observers has also been used (Hawkins and Walters 1952).

The correlation coefficient used to calculate the reliability of each of the 69 items in the report form was the Pearson r (Pearson product moment correlation coefficient). A form of the formula is

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}}{\sqrt{\left[\Sigma X^2 - \frac{(\Sigma X)^2}{n}\right]\left[\Sigma Y^2 - \frac{(\Sigma Y)^2}{n}\right]}}$$

where n = number of field trips

X = variable a_1 measured by the guide

Y = variable a_1 measured by the observer

Sample for the calculation of the Pearson r was 50 field trips, a 9.6% sample. These were from field trips 113 through 368 (Appendix 14).

An important reason for using the Pearson r instead of percentage agreement is its similarity to the correlation coefficients in the correlation matrix for the factor analysis.

Measurement and calculation of r are under the influence of the same assumptions and conditions of measurement as the data used in the study. Reliability should be based on the same score or measure actually used in the analysis of the data (Heyens and Zander 1953). Peak (1953) claims reliability information is accurate only to the extent that one computes a reliability coefficient which is appropriate to the way in which the material is to be used, and that it is very important to realize the level of analysis being utilized and to compute reliability coefficients appropriately.

There are some assumptions which are not entirely true when calculating correlation coefficients from the type of data used in this study. Any influences this could have would be the same for the reliability coefficients as for the correlations used in the factor analysis. Peak (1953) states one has to assume variables are related linearly, distribution is normal and variables continuous. Size of coefficients is related to the kinds of groups sampled.

Numbers assigned to behaviors in scales represent equal intervals or increments of some behavioral process. Results of analysis may depend more on this assumption than on the reality being measured, and the correlations will not reflect an accurate picture of the processes inferred to exist (Peak 1953). She goes on to say that the ultimate test of any construct and of the measures which enter into its definition is the utility of the construct in reducing the matrix of events to some meaningful order and that if constructs derived from correlations prove to have value as parts of a dynamic system, this suggests the mathematical model is appropriate in some degree.

The Pearson r describes the degree of simultaneous or concomitant variation of two variables. The essential feature of the data is that one observation can be paired with another observation for each member (field trip) (Ferguson 1971).

The Pearson r as a measure of the relationship between two variables (observer and guide measurements) is used with interval and ratio scaled variables, and the most important requirement to justify its use is the assumption of linearity of relationship (Runyon and Haber 1971). It is not necessary that r be calculated only with normally distributed variables so long as the distributions are unimodal and relatively symmetrical (Runyon and Haber 1971). They give the following explanation of the values of the Pearson r. Values of the Pearson r vary between +1.00 and -1.00. Both of these extremes represent perfect relationships between variables and zero represents no relationship. A positive relationship means individuals obtaining high scores on one variable tend to obtain high scores on a second variable.

The value of the Pearson r in this study represents the extent of agreement among ten guides using a field trip report form to describe behavior on field trips in which they are participant observers. A high value, close to +1.00, represents close agreement; +1.00 would be perfect agreement. How close an agreement (+0.5, +0.7, +0.8 or +0.9) is needed, depends on the purpose of the work (Heyens and Zander 1953). If one is interested in close relationships between variables or being precise about groups who are similar, one needs a very high reliability; if one only wants to distinguish between people at extremes or determine whether a relationship exists, one does not need a high reliability (Jahoda et al 1951). Although this study falls in the second category, a fairly stiff

standard for this kind of exploratory work was used to get rid of unreliable measures.

Twenty-nine variables with reliabilities equal to or greater than +.70 were used in the factor analysis and because the writer felt they were important, four more variables of slightly lesser reliability were also used in the analysis (3 Expressive Activities +.67, 11 Discussion Origins +.69, 12 Forest Activity Origins +.68, and 25 Describing Observations +.66) (Appendix 16 Variables 1-33). Even with low reliabilities one could still obtain significant relationships if a very large number of cases were studied (Jahoda et al 1951). The number of field trips studied was quite large: 522 involving 8,000 children.

Although the method and assumptions involved in determining the reliability coefficients were not perfect, the variables so determined for use in the factor analysis are reliable enough because of the exploratory nature of the research, the stringent criteria for selection of reliable variables, and the large sample used in the factor analysis.

A variable may be reliable but this does not necessarily indicate that a significant variable is being measured or that it is what is supposed to be measured or that it is uncontaminated by irrelevant influences. These are problems of validity.

VI-2 Validity

Validity is concerned with the question "Are we measuring what we think we are measuring?" This study is concerned with measuring common elements of children's behavior on a specific type of field trip, particularly those elements which would influence how the guides apply the field trip teaching method.

Problems of validity are most serious when a great deal of inference is involved (Heyens and Zander 1953). This work was designed to be as objective as possible; however, selective perception, recall,and recording by different observers (guides) can seriously influence validity (Jahoda et al 1951). The intensive training the guides received, their prior experience with the behavior measured and the explicit procedures for recording data should have kept these influences to a minimum.

Determining validity is not easy. Usually the procedure is to attempt to obtain a valid independent measure of the behavior and compare its measurements in the same specific situation to the instrument in question (Peak 1953). Usually this is not possible.

Validity has been assessed by 1) making measurements on different people of known characteristics and seeing if the measurements differentiate the people logically, 2) having people qualified in assessing the behavior make ratings and compare these to the measurements in question, and 3) testing the measurements made against an established theory involving the variables to see if the measurements are in accordance with the theory. If they are, the measures are valid. Validity of measurements is necessarily interdependent with the general state of scientific knowledge in the area of investigation (Jahoda et al 1951). This work is exploratory; in fact, one of the purposes of the factor analysis is to identify factors or influences that are valid.

The ultimate test of validity of any measurement is its usefulness in enabling one to predict behavior in a situation of known characteristics (Jahoda et al 1951).

With this in mind, immediately after the field trip season, guides

were given data from a field trip and told to describe the field trip in their own words. The data on the form were supposed to describe common elements of the children's behavior and activities, which would influence the use of the field trip teaching method. Each guide received the same data and described the field trip by herself without consultation with the other guides. This was then repeated, using data from a different field trip. The field trips chosen were very different but they were not extreme examples. If the instrument is valid the guides' descriptions should be similar for each field trip and differentiate between the two field trips.

The descriptions were consistent for each field trip and discriminated clearly between the two field trips. The guides' descriptions followed the lines of: 1) how interested and proficient the children were in discussing the forest, and 2) the nature of discipline problems on the field trip. The first field trip was described as having very good discussions and the second one not. Discipline problems were minimal on the first but a disruptive factor on the second (Appendix 17).

A substitute guide also did this exercise. She received less training than the rest and conducted only seven field trips. She filled in for guides who were ill or when a guide was needed for other duties (such as observing) or when a school brought too many children and the group size had to be kept under twenty. She followed the same procedures as other guides and collected data on the seven field trips she conducted. Her data wasn't used in the study. Her experience was at a much lower level than that of the full-time guides, yet her descriptions followed the same pattern as the rest. The three new guides who started in 1971 would have

had at least as much experience when they started conducting their own field trips as she had to do this exercise. In Appendix 17 the new guides were numbered one, three, and five.

This exercise produced some variation which would not be in the data which was factor analysed. The descriptions were based on some variables in the form which were unreliable, and not all guides expressed themselves equally well by writing.

When given behavior data from field trip report forms guides agreed in their predictions on how the field trip teaching method would have to be applied in order to take into account the children's behavior. Guides also agreed in their descriptions of children's behavior and the type of learning experience the children would have had on such field trips.

This seems to indicate that the behavior data is meaningful and the variables measured what they were supposed to; namely, common elements of behavior which would influence the implementation of the field trip teaching method.

The guides' descriptions are in Appendix 17 so that the reader can compare them and gain insight into the nature of the variables measured.

In summary, the objective was to describe common elements of children's behavior on field trips and to test the hypothesis that these elements varied with the children's home communities. This information is to assist in evaluating the conservation field trip program.

Twenty-eight pertinent socio-economic variables described the children's communities. Guides, as participant observers, systematically collected reliable, valid behavior data (39 behavior variables) by completing a post-field trip report form and tabulating limited data during

the field trips.

The socio-economic and behavior data for 522 field trips were factor analysed to obtain a set of factors which 1) represent basic dimensions of children's behavior on field trips, and 2) either affirm or negate the hypothesis. To support the hypothesis the factor analysis must allocate high loadings of some of the behavior and socio-economic variables to the same factors. To refute the hypothesis, the analysis must allocate the high loadings of all behavior and socio-economic variables to different factors.

VII RESULTS

The first part of this section describes some characteristics of the data tabulated during the field trip. The second part presents information about the reliability of the field trip report form. The last part contains the results of the factor analysis.

VII-1 Interaction and Discipline Data

VII-1a Interaction Data

Both children-guide and children-forest interaction varied from less than 10% to more than 90%. Most guide interaction was between 20% and 49% and forest interaction between 50% and 79% (Table 5).

Social interaction was observed on 40% of the field trips. Only 10% of the field trips had more than 5% social interaction (Table 5).

Respectively the means and standard deviations for the percentages of guide, forest, and social interaction were 35.6, $\pm$15.9; 61.7, $\pm$17.1; and 1.6, $\pm$3.3.

VII-1b Discipline Data

There was an average of 8.4 discipline actions per field trip. Percentage of field trips not requiring protection disciplines was 17%, respect disciplines 27%, and safety disciplines 16%. For any of these norms, few field trips had more than 8.4 disciplines (Table 6).

Respectively, the means and standard deviations for the number of disciplines to enforce the norms of protection, respect and safety were 3.3, $\pm$4.2; 1.9, $\pm$2.1; and 3.2, $\pm$3.6.

Table 5 Distribution of Measured Interaction for 519 Field Trips

Percentage of Interaction	Children-guide	Children-forest	Social
	Number of Field Trips		
0 to 9	18	1	500
10 to 19	58	3	16
20 to 29	107	9	2
30 to 39	131	32	1
40 to 49	110	61	
50 to 59	58	118	
60 to 69	24	117	
70 to 79	10	106	
80 to 89	2	51	
90 to 99	1	21	

Table 6 Distribution of Discipline Actions for 519 Field Trips

Number of Discipline Actions	Protection	Respect	Safety
	Number of Field Trips		
0	86	140	85
0.5 to 1.4	78	137	101
1.5 to 2.4	93	86	92
2.5 to 4.4	131	103	116
4.5 to 8.4	91	44	88
8.5 to 16.4	35	9	31
16.5 to 32.4	4		6
32.5 to 64.4	1		

VII-2 Reliability of Field Trip Report Form Variables

The reliability coefficients of the 69 behavior variables ranged from -.14 to +.97 (Appendix 13). There were 32 variables with reliabilities between +.60 and +.79, and 29 over +.70 (Table 7). Variables with reliability coefficients equal to or greater than +.70 were considered reliable and used in the factor analysis. Four variables of slightly lower reliability were also used (3 Expressive Activities +.67, 11 Discussion Origins +.69, 12 Forest Activity Origins +.68, and 25 Describing Observations +.66). Most of the variables measured by percentage of occurrence were unreliable since few had reliabilities over +.70 (Table 8).

VII-3 Results of the Factor Analysis

The initial factor analysis yielded 12 factors accounting for 70% of the variability in the original data (Table 9). Appendix 18 contains the complete rotated factor matrix. Four factors: Factor 1 Interest in Learning from Discussions, Factor 2 Response to Authority and Conservation Norms, Factor 8, a cultural social status factor, and Factor 9, a socio-economic factor, account for 51% of the variability in the original data.

In these results 0.20 is considered a very small but appreciable loading. The behavior variables do not load appreciably on the same factors as the socio-economic variables. Behavior variables have high loadings on factors one to seven and socio-economic variables on factors eight to twelve.

Factor 6 Discipline Not Associated with Antagonism has a small loading (+.24) from one economic variable (Rent Less Than $59/Month) and Factor 7 Indifference has small loadings (-.27 and +.26) from two economic variables (Average Bedrooms/Dwelling and Rent Less Than $59/Month).

Table 7 Distribution of Reliability Coefficients for Field Trip Report Form Variables

	Range of Reliability Coefficients								
	.10to.19	.20to.29	.30to.39	.40to.49	.50to.59	.60to.69	.70to.79	.80to.89	.90to.99
Number of Variables	1	4	4	11	6	13	19	7	3

Table 8 Reliability of Three Measures Used in the Field Trip Report Form

Measure	Number of Variables	Variables with Reliabilities .70
Percentage of Occurrence	25	6
Behavior Scale	23	13
Number of Children	21	10

Table 9. Rotated Factor Loadings for Sixty-Seven Field Trip Behavior and Socio-Economic Variables (Only loadings greater than +.20 and -.29 are included)

Variables	Rotated Factor Loadings											
	1	2	3	4	5	6	7	8	9	10	11	12
BEHAVIOR VARIABLES												
27 Recognition of Problems	+.86											
29 Flexibility with Problems	+.85											
28 Concern for Problems	+.83											
26 Group Use of Concepts	+.81											
13 Depth of Discussions	+.82											
16 Distribution of Discussion	+.78											
25 Describing Observations	+.75					+.24						
10 Variety of Discussions	+.75											
11 Discussion Origins	+.74			+.27								
6 Self-Direction Discussions	+.74			+.26								
8 Leadership	+.73			+.27								
14 Depth Forest Activities	+.63			+.29	-.22		-.21					
21 Forest to Guide Interaction	+.58			+.41		-.22						
30 Field Trip Content	+.58											
7 Self Direction Forest Activities	+.53			+.62								
9 Leadership Forest Activities	+.53			+.60								
2 Active Observation	+.48		-.36	+.20								
12 Forest Activity Origins	+.45			+.66								
23 Interest in Forest Experience	+.28				+.81		-.41					
39 Safety Disciplines		+.23				-.63						
33 Safety Norm Reasonable	+.23	-.23		-.25		+.42						
37 Protection Disciplines		+.29				-.44						
38 Respect Disciplines		+.41				-.32						
19 Antagonistic to Guide		+.69										
31 Protection Norm Unreasonable		+.74										
32 Respect Norm Unreasonable		+.78										
15 Fight and Attention Getting												
34 Guide Interaction			-.81									
24 Ecstatic about the Trip				+.24	-.86							
36 Social Interaction						-.22						
5 Small Group Social Interaction						-.22						
35 Forest Interaction			+.82									
4 Small Group Forest Interaction			+.20			-.34		+.20				
1 Passive Observation	-.24			-.73								
3 Expressive Activities	-.27	+.29	+.30	+.50								
18 Energy Withdrawn	-.38			-.30			+.38					
17 Energy Hyperactive	-.31	+.46	+.21	+.34	-.23							
22 Indifferent to Forest Experience	-.42			-.32			+.71					
20 Indifferent to Guide	-.50		+.26				+.31					
SOCIO-ECONOMIC VARIABLES												
47 High School Education								+.90		-.20		
65 Dwelling $18,000								+.88				-.29
42 English Speaking								+.87	-.24		-.21	
49 Managerial Prof. Occupations								+.85	-.31			+.27
48 University Education								+.83				-.47
57 Income $7,000							-.27	+.58		-.21		+.26
61 Average Bedrooms/Dwelling								+.40	-.76		+.29	
66 More than one Mortgage								+.21	-.83			+.27
60 Dwellings 1946 to 1961									-.43	-.84		
59 Dwellings before 1920										+.91		
52 Both Parents Working									+.43		-.77	+.27
54 One Parent Families									+.71	+.60		
43 Bilingual									+.82		+.27	
45 Canadian Born								-.24			+.90	
58 Apartments								-.25	+.82		-.33	
40 Population Density								-.32	+.47	+.61	-.45	
44 Other Language								-.38			-.84	
53 Average Persons/Household								-.40	-.78	-.27	+.23	
67 Rent $59/month						+.24	+.26	-.41		+.50	+.37	
63 Dwellings Major Repairs								-.48	-.22	+.65		
56 Income $4,000 - $6,999								-.60		-.23		+.68
64 Dwellings $7,000								-.63	+.29	+.25		-.30
50 Unemployment								-.65	+.24	+.45	-.25	
51 Families 6 Children								-.67	-.48		+.34	
55 Income $4,000 year								-.71	+.37	+.44	-.31	
41 French Speaking								-.88			+.29	
62 Crowding								-.95				
46 Elementary Education								-.96				
VARIANCE ACCOUNTED FOR	14.5	6.9	2.7	2.3	2.0	1.6	1.6	19.7	10.2	3.9	3.1	1.8

Percentage

Factors six and seven together account for 3.2% of the variance.

Since the economic variable loadings are few and small and the factors they are loading on account for very little of the variability in the original data the association between socio-economic and behavior variables is insignificant.

Factor 8 (a cultural social status factor) has a small loading (+.20) from one behavior variable Small Group Forest Interaction. This factor has 19.7% of the variance. Its important variables have loadings in the order of $\pm$.90 and $\pm$.80 while the behavior variable loading is only +.20 (Table 9). This one behavior variable with its small loading is not an important aspect of this cultural social status factor.

Since the factor analysis separates the behavior and socio-economic variables out into different factors this refutes the hypothesis. This shows that behavior on the field trips does not vary with the children's home community.

Appropriate names for the seven behavior factors (basic dimensions of the measured behavior on these field trips) are: Factor 1 Interest in Learning from Discussions, Factor 2 Response to Authority and Conservation Norms, Factor 3 Forest Interaction Versus Guide Interaction, Factor 4 Hyperactive Forest Interaction, Factor 5 Excitement Versus Learning, Factor 6 Discipline Not Associated with Antagonism, Factor 7 Indifference.

The factor analysis shows that the behavior measured on these field trips is multi-dimensional and so is the socio-economic description of the children's communities but the two are independent. There are seven basic dimensions of the behavior measured on these field trips. Since the positive and/or negative high loadings of all the behavior and socio-economic

variables are allocated to different factors, the hypothesis that the common elements of children's behavior on these field trips varies with their home community is refuted. Thus, behavior of children on these field trips does not vary with the community they live in. This means that the field trips can be effective with all children regardless of their social class and the socio-economic conditions of their home communities.

The five alternative analyses produced the same factor pattern. Appendix 19 contains their rotated factor matrices. Alternative 1 which involved only affluent communities produced four factors which accounted for 53% of the variance. The first corresponded to Factor 1 Interest in Learning from Discussions, and the fourth to Factor 2 Response to Authority and Conservation Norms. The second factor was an education-occupation (social status) factor and the third a socio-economic factor. The behavior and socio-economic variables loaded on separate factors and the two important behavior factors were the same as in the original analysis.

Alternative 2 which involved poorer areas of Metropolitan Montreal generated four factors which accounted for 55% of the variance. The second factor corresponded to Factor 1 Interest in Learning from Discussions and the fourth to Factor 2 Response to Authority and Conservation Norms. The first factor was a socio-economic-immigration factor and the third was similar to Factor 8, a cultural-social status factor. Again the important behavior factors are the same and are separate from the socio-economic factors.

Alternative 3 used a selection of pertinent behavior and socio-economic variables. It generated four factors which accounted for 51% of the variance. The second factor corresponded to Factor 1 Interest in

Learning from Discussions and the fourth to Factor 2 Response to Authority and Conservation Norms. The first was a cultural social status factor similar to Factor 8 and the third was a socio-economic factor similar to Factor 9. The stability of the factor pattern is again upheld by this analysis.

In alternative 4 just the behavior variables were factor analysed. The first seven factors accounted for 63% of the variance and the first two 42% of the variance. These seven factors were the same seven behavior factors produced by the original analysis. The fifth and sixth factors switched places compared to the original analysis. This analysis shows the behavior factor pattern is stable.

Alternative 5 factor analysed the behavior variables by using computer program BMD03M and by altering the analytic procedures. The first seven factors accounted for 56% of the variance and produced the same seven behavior factors as the initial analysis. The first two factors explained 40% of the variance. These results indicate a stable consistent factor pattern, and that the results of the initial analysis are stable and meaningful.

First, the behavior measured on the field trips can be described by seven basic dimensions, two of which, Interest in Learning from Discussions and Response to Authority and Conservation Norms, are very important. Secondly, these common elements of behavior do not vary with the children's home communities. Thus these field trips can be effective with all children regardless of their social class and the socio-economic conditions of their community.

VIII DISCUSSION

VIII-1 Reliability of Field Trip Report Form Variables

A reliability coefficient was calculated for each variable in the field trip report form. Only variables having a high reliability were factor analysed. Data from variables with a low reliability were not used because the data were inconsistent. Variables with a low reliability were being estimated differently by guides. The reliability of these variables varied greatly. There are several possible reasons for this.

A guide and observer may not have seen exactly the same aspects of a field trip. For example, an observer could not always hear personal conversations between a guide and one or two children. This could have influenced variables such as Variable 10 Intimate with Guide.

Some situations did not occur enough to assess them with confidence. Sometimes there were few opportunities during a field trip to observe how a group resolves its disagreements (Variable 62). The more involved a guide is with a behavior the more likely she is to remember it vividly and to measure it confidently. Because of extra effort required to get very active children or very passive children involved in discussions, guides tended to remember these children.

A few variables did not fit the behaviors which usually occurred on the field trip, such as Variable 45 Group Climate. Most inconsistencies were probably due to guides having slightly different frames of reference; for example, in Variable 10, a little variety in activities versus some variety in activities versus considerable variety in activities versus great variety in activities.

The simpler the measure used the more likely a variable will have

a high reliability. When using percentage of occurrence, a guide has to balance the number of times or amount of time something happens and number of children involved; for example, in Variable 34 Problem Solving Discussions and Variable 35 Discussions about Feelings. With a scale of behaviors, a guide only has to decide which statement best describes her group. Even this can be difficult when part of the group fits one category and part another category. This did happen for Variable 26 Group Use of Concepts. Noting the number of children which exhibit a behavior is also simpler than estimating percentage of occurrence.

Some variables probably required too much inference to get reliable ratings from guides. Variable 46 Task, Variable 47 Group, and Variable 48 Individual (Appendices 8 and 9) might have been in this situation. Guides could have been using different behavior cues to rate these variables.

Probably the most important aspect is that a variable be clearly and simply defined and easily observable. For example, Variable 21 Forest to Guide Interaction (Figure 9) fulfills these characteristics much better than Variable 47 Group Functions. Forest to Guide Interaction is a situation in which children are already interacting with the forest before the guide enters into the interaction, whereas the definition for Group Functions is guide actions which help the group maintain itself (Appendix 9).

VIII-2 Results of the Factor Analysis

The 67 explanatory variables can be understood in terms of twelve factors. These factors contain groupings of intercorrelated variables. The factors are independent - that is, uncorrelated with each other. The twelve factors show that the behavior measured on the field trips is multidimensional and so is the socio-economic description of the children's

communities but the two are independent. This refutes the hypothesis and indicates that children respond similarly to this field trip experience regardless of their community.

Factors eight to twelve describe the children's communities. Factors eight and nine are the most important since they account for most of the variability in the original data. Factor eight seems to be a cultural-social status factor. The important variables defining this factor have loadings above +.80 (47 High School Education, 65 Dwellings More Than $18,000, 42 English Speaking, 49 Managerial and Professional Occupations, 48 University Education); and negative loadings above -.70 (46 Elementary Education, 62 Crowding, 41 French Speaking, and 56 Income Less Than $4,000 year).

Six variables define factor nine. Three (43 Bilingual, 54 One Parent Families, 58 Apartments) receive loadings higher than +.70 and three (66 More than one Mortgage, 53 Average Persons/Household, 61 Average Bedrooms/Dwelling) have loadings larger than -.75.

The 39 behavior variables are explained in terms of factors one to seven. Factor 1 (Interest in Learning from Discussions) and Factor 2 (Response to Authority and Conservation Norms) are the most important since they account for 21.4% of the variance.

VIII-2a Factor 1 Interest in Learning from Discussions

Factor one accounts for almost as much variance as the other six factors put together. It is a measure of children's interest in learning about the forest from discussions with the guide. It also indicates the level of problem-solving skills used by children.

Eight variables have loadings greater than +.75. Each of these

measures involvement in problem-solving discussions or level of problem-solving skills used. The next three highest variables (11 Discussion Origins, 6 Self-direction Discussions, 8 Leadership Discussions) have loadings of +.74, +.74 and ±.73 respectively. These describe how discussions are organized and participated in by the guide and the children. Seven variables with loadings between +.63 and +.45 describe children's interactions with the forest and the role played by the guide as she assists this involvement.

These three clusters of variables suggest that when groups are deeply involved in discussions and are skilful at problem solving, all children are taking part in the discussions and topics are originating with the children. The guides are just providing questions and information when appropriate. At the same time children are directly involved with the forest and are initiating activities with the forest themselves. Again the guide is acting as a resource person supplying useful ideas and activities when requested. In this situation groups tend to cover more subject matter and there is more complete group interaction with the forest and more active observation of the forest.

Variables 20 Indifferent to Guide and 22 Indifferent to Forest Experience have the highest negative loadings. Two variables describing very passive behavior and two describing very energetic behavior receive appreciable negative loadings. These variables correlate negatively to the variables with positive loadings in this factor. Thus when there is this indifference and very passive or very active behavior, the groups tend to be less involved in discussions and do not use problem solving skills at a high level. The guide has to initiate and dominate any discussions. At the same time the guide has to work hard at getting them

actively involved with the forest in a way which stimulates meaningful discussions. There tends to be less subject matter covered in this situation.

VIII-2b Factor 2 Response to Authority and Conservation Norms

Factor two indicates how groups can respond to the three conservation norms and authority of the guide. The variables (31 Protection Norms Unreasonable, 32 Respect Norms Unreasonable) have loadings of +.78 and +.74. This means children are not accepting these norms and the reasons for them. In this situation the guide would enforce these norms by using group pressure or by firmly laying down rules or by using rewards or punishment. When this happens the relationship between guide and children tends to be antagonistic as shown by the high loading (+.69) on Variable 19 Antagonistic to Guide.

Five other variables (17 Energy Hyperactive +.46, 38 Respect Disciplines +.41, 3 Expressive Activities +.29, 37 Protection Disciplines +.29, 39 Safety Disciplines +.23) contribute appreciable positive loadings and these show that groups which would rate high in factor two would tend to require more protection, respect, and safety disciplines. These groups would tend to be hyperactive and to concentrate on expressive physical activities when interacting with the forest.

The negative loading (-.23) on Variable 33 Safety Norm Reasonable shows there is a slight tendency for the safety norm not to be accepted.

VIII-2c Factor 3 Forest Interaction Versus Guide Interaction

This factor and the rest of the behavior factors explain much smaller amounts of the data's variance.

Factor three deals with the behaviors the children tend to exhibit when they would rather interact with the forest than with the guide.

Variable 2 Active Observation (-.36) associates with Variable 34 Guide Interaction (-.81). Variables 4 Small Group Forest Interaction (+.20), 17 Energy Hyperactive (+.21), 20 Indifferent to Guide (+.26), 3 Expressive Activities (+.30), associate with Variable 35 Forest Interaction (+.82).

When children are more interested in forest interaction the groups tend to be hyperactive, indifferent to guide, to split up more, and to be primarily interested in expressive physical activities rather than active observation with the guide.

VIII-2d Factor 4 Hyperactive Forest Interaction

Factor four describes very excited, lively forest interaction which does not correlate with being interested in problem-solving discussions. From the variables (12 Forest Activity Origins +.66, 7 Self Direction Forest Activities +.62, 9 Leadership Forest Activities +.60, 11 Discussion Origins +.27, 6 Self Direction Discussions +.26, 8 Leadership Discussions +.29, 14 Depth Forest Activities +.29, 2 Active Observation +.20) it can be seen that when children are initiating and carrying out this forest interaction themselves there is less tendency for them to actively observe the forest and to get deeply involved in forest activities and to initiate and participate in discussions as compared with a similar situation in factor one. At the same time there is a tendency for the safety norm not to be accepted (Variable 33 Safety Norm Reasonable -.25). In factor one this variable associated positively with forest interaction variables.

Hyperactive behavior and interest in expressive activities correlate positively with this factor's forest interaction but in factor one they

correlated negatively with these forest interaction variables.

Passive behavior and indifference to the forest experience have appreciable negative loadings in this factor and correlate negatively with the variables associated with very active forest interaction.

VIII-2e Factor 5 Excitement Versus Learning

This factor describes data which indicate that when children are excited about being on the trip but not interested or enthusiastic about learning about the forest there is a tendency for the group to be hyperactive and deeply involved in their interactions with the forest (24 Ecstatic About Trip -.86, 17 Energy Hyperactive -.23, 14 Depth Forest Activities -.22, 23 Interested in Forest Experience +.81). However, these interactions with the forest would not likely lead to problem-solving discussions since there is little interest in learning.

VIII-2f Factor 6 Discipline Not Associated with Antagonism

This factor relates variables to the number of times guides had to discipline children. The number of disciplines for protection, respect and safety has a slight correlation with amount of social interaction and tendency for the group to split up when interacting socially and with the forest. There is a small correlation between number of disciplines and number of discussions which are initiated by the group finding something in the forest. The group's interest in the forest experience and ability to describe things correlates negatively with the number of discipline attempts. Variable 19 Antagonistic to Guide does not load appreciably on this factor. This indicates that antagonism between guide and children does not associate with this pattern of behaviors and the discipline actions required to enforce the conservation norms.

VIII-2g Factor 7 Indifference

This factor is describing behaviors which are most closely associated with indifference (22 Indifferent to Forest Experience +.71, 23 Interested in Forest Experience -.41, 20 Indifferent to Guide +.31). Very quiet withdrawn behavior associates with indifference variables and involvement in forest activities associates with interest in the forest experience.

The socio-economic factors 8 to 12 do not correlate with these seven behavior dimensions and therefore are not discussed in detail.

IX SUMMARY AND CONCLUSIONS

Guides, as participant observers, can collect reliable, valid data by completing a post-field trip report form. They can tabulate limited data during the outing without it affecting their field trips.

On these field trips children interact primarily with the forest and the guide. There is very little social interaction not associated with the forest. Of the measured interaction 61.7% is forest, 35.6% guide and 1.6% social.

On the average, groups require 3.3 protection disciplines, 1.9 respect disciplines and 3.2 safety disciplines. Percentage of field trips not requiring protection disciplines is 17%, respect disciplines 27%, and safety disciplines 16%.

The factor analysis shows that the behavior measured on these field trips is multi-dimensional and so is the socio-economic description of the children's communities but the two are independent. Children's behavior on these field trips does not vary with their home communities. Different factor analyses showed the factor pattern to be stable.

Seven factors, 1) Interest in Learning from Discussions, 2) Response to Authority and Conservation Norms, 3) Forest Interaction Versus Guide Interaction, 4) Hyperactive Forest Interaction, 5) Excitement Versus Learning, 6) Discipline Not Associated with Antagonism, and 7) Indifference, describe the measured behavior on these field trips. Factor 1 Interest in Learning from Discussions, and Factor 2 Response to Authority and Conservation Norms are the most important since they account for most of the variance in the behavior data. These two dimensions of children's behavior and activities are the most important to rate when evaluating

these field trips in terms of their conservation educational objectives. These field trips can be effective with all children regardless of their social class.

X SOME IMPLICATIONS AND APPLICATIONS OF THE RESEARCH

The findings of this research are useful for evaluating these field trips, monitoring what happens on them, guiding further research and improving and developing the program.

Children will behave similarly on these field trips regardless of the socio-economic conditions of their communities. Therefore guides should not pre-judge how children from a particular community will behave on these field trips. Rather, at the beginning of the field trip when they board the bus, guides should start assessing children and continue this during the field trip. Guides can relate children's activities and behaviors to the seven behavior factors and adapt their actions accordingly. Being aware of the children's interest in learning from discussions and responses to authority and the conservation norms is very important.

This field trip teaching method can be effective and successful since children from communities which differ culturally and socio-economically respond similarly to it and since behavior does occur on these field trips which is consistent with the aims and objectives of this outdoor education program. For example, children do become involved with the forest and the guide as shown by the amounts of forest, guide and social interaction. There is little social interaction not related to the forest. Children do participate in problem solving discussions about things they find and observe, and they do enjoy the field trips.

Naturally some field trips are more successful than others and a few are not successful; however, field trip success does not vary with the social class of children.

Groups rating high in Factor 1 Interest in Learning from Discussions, Factor 4 Hyperactive Forest Activity, Factor 5 Excitement Versus Learning and low in Factor 7 Indifference, will be actively discovering the forest in their own way. Groups rating high in Factor 7 Indifference and low in Factor 4 Hyperactive Forest Activity will show little involvement with the forest. Some groups rating low in Factor 1 will be involved with the forest.

A high rating for Factor 1 Interest in Learning from Discussions and lows for Factor 3 Forest Interaction Versus Guide Interaction and Factor 5 Excitement Versus Learning indicate that children are discussing and developing explanations of what they are finding and experiencing in the forest. Factor 3 is concerned with active interaction, particularly forest interaction. Groups rating high in Factor 3 would probably exhibit a lot of guide interaction and active observation, whereas a low rating indicates children tend to be split up and expressive in their forest activities.

This study shows that allowing children to be spontaneous and to choose their own topics of discussion and to do what they want so long as they do not break conservation norms can be a feasible procedure for conducting interesting and meaningful field trips for them. At the same time, these field trips will fulfill the educational objectives of this program regardless of the kind of socio-economic community the children live in.

How children respond to the teaching of conservation norms by this method can be interpreted by looking at the discipline variables, Factor 2 Response to Authority and Conservation Norms, and Factor 6 Discipline Not Associated with Antagonism. On the average there are 8.4 disciplines per field trip or times at which the conservation norms would be explained

in terms of what the children are actually doing. This did not interfere with learning about the forest from problem-solving discussion since the discipline data did not load appreciably on factors associated with this kind of learning. The method does provide opportunities to explain conservation norms during the field trip since only a small percentage of field trips required no discipline actions.

A low rating in Factor 2 Response to Authority and Conservation Norms indicates that conservation norms are being accepted and little discipline is needed. A high rating shows that norms are being rejected and more discipline is required. At the same time antagonism tends to develop between children and guide. When this happens the objectives of our program at times are not being met. The field trip may not be an enjoyable experience for the children involved (or the guide) and conservation teachings are being disregarded.

A high rating in Factor 6 Discipline Not Associated with Antagonism indicates that a group requires discipline guidance as it interacts with the forest and that it will follow this guidance even though it has to be repeated for new situations. A low rating shows that few disciplines are required and that the norms are accepted, understood and put into practice during the field trip. Perhaps younger children (kindergarten) tend to get higher ratings in Factor 6 since Variable 25 Describing Observations correlates negatively with the number of disciplines. A low value for Variable 25 means a group only uses and understands very general and simple words.

These two factors also indicate how children are responding to an opportunity to follow a lifestyle, or way of doing things, based on a

conservation ethic of protecting the environment, respecting other people's use of it, and heeding safety precautions necessitated by the environment. On these field trips children will experience this opportunity in different ways but their response does not vary with social class.

Evaluating what happens during field trips can be accomplished by recording the number of discipline actions during the field trip and completing a field trip report form which contains the important variables in Factor 1 Interest in Learning from Discussions and Factor 2 Response to Authority and Conservation Norms.

If more details are wanted all the important variables (those which have high loadings) in the seven factors could be recorded. Recording interaction data requires quite a bit of work and concentration by the guide to classify children into categories during the field trip and if possible should be avoided. If new behavior variables are to be added to the field trip report form the sections III-3a Behavior Variables and VI Reliability and Validity should be useful.

Training guides to deal with hyperactive behavior, very passive behavior, indifference and antagonism would be beneficial to this program. For this type of field trip and age level it is more important to hire guides for their personality, empathy for children, enthusiasm, and ability to think quickly and logically, rather than for their knowledge of forestry and ecology.

Techniques for quickly quenching hyperactivity and expressive physical activities or for guiding them so that they produce meaningful discussions about the forest experience would be useful so long as the criterion of the children enjoying the field trip is still being met.

Another useful tactic might be for children to receive more intensive pre-field trip preparations in school which will help: 1) stimulate their interest in learning about the forest, 2) keep them from being too passive or hyperactive on the field trip, and 3) too excited about getting out of school and going on a trip.

This exploratory research points out some areas where more research and development of this program can be directed.

This work does not preclude the possibility that children from different communities do behave differently in the forest. The behavior permitted and encouraged on the field trips is determined by the field trip teaching method as implemented by the guide. If the children were entirely free they would most likely behave very differently.

Some behaviors which were not measured or which were not reliable and therefore not analysed, may vary with different communities. Perhaps fear of things in the forest, topics of discussion, and what children relate their discussions to, do vary with children's home communities.

This study points out several questions and areas which require further research. The type of environment can influence group activity and behavior. Specific group activities or tasks could be compared in conifer plantations, natural hardwood stands, fields, and at ponds by rating groups with respect to Factor 1 Interest in Learning from Discussions and Factor 2 Response to Authority and Conservation Norms.

Groups do behave differently on these field trips. Testing the hypotheses described by Witt and Bishop (1970) which are concerned with the relationship between past events and subsequent leisure behavior might prove very fruitful.

Different types of groups - scouting, playground, school - often seem to come into field trips with different attitudes towards learning. This could influence behavior and the nature of the field trip.

Different teachers and types of schools might very well affect behavior on field trips. Whether or not a teacher went on a field trip could influence children's behavior depending on her attitudes toward discipline and purpose of the field trip.

Particular guides may react differently to different behaviors, activities, and social classes of children. An analysis of guide style in using the teaching method which took into account guide attitudes toward leadership, authority, behavioral problems, and social class might be worthwhile.

For school groups in the kindergarten to grade four grades, these field trips can be enjoyable and educational for all socio-economic groups of children. Since there is a serious imbalance in opportunities for different socio-economic groups of children to recreate in a natural setting (Hewes and Hammett 1962) it is very important to continue this program, improve it and make it available to all children.

No sweeping changes in field trip methods or procedures are needed, just some refinements for selecting suitable guides and training them to deal with difficult behaviors such as indifference, hyperactivity, expressive physical activities and antagonism. If funds become available to expand this program they would be well spent on ensuring children have a good experience by providing materials and guides for pre-field trip preparation in schools and ensuring all children have an equal opportunity to experience these field trips by 1) effective advertising which motivates principals and teachers to bring children, and 2) free transportation between schools and the Arboretum.

XI BIBLIOGRAPHY

Adelman, J. and Taft Morris, C. 1967. Society, politics, and economic development. A quantitative approach. John Hopkins Press, Baltimore. 307 p.

Algar, D. and MacArthur, J.D. 1972. Morgan Arboretum: environment for conservation education. The Forestry Chronicle, Vol. 48(3): 121.

Almy, M. 1966. Spontaneous play an avenue for intellectual development. Child study 28(2): 2-15.

Andrews, W.H. 1965. The forest recreation complex. Natural Resources Development Research Seminar of the Rural Sociological Annual Meeting. 8 p.

Baker, R.H. 1958. The future of wildlife in northern Mexico - a problem in conservation education. Transactions North American Wildlife and Natural Resources Conference 23: 567-575.

Bales, R.F. 1950. Interaction process analysis. Addison-Wesley, Cambridge. 195 p.

Beers, H.W. 1953. Rural-urban differences: some evidence from public opinion polls. Rural Sociology 18: 1-11.

Bishop, D.W. and Ikeda, M. 1970. Status and role factors in leisure behavior of different occupations. Sociology and Social Research 54: 190-208.

Bishop, D.W. 1970. Stability of the factor structure of leisure behavior: behavior analysis of four communities. Journal of Leisure Research 2: 160-170.

Borgatta, E.F. and Crowther, B. 1965. Workbook for the study of social interaction process. Rand McNally, Chicago. 96 p.

Boynton, P.L. and Wang, J.D. 1944. Relation of the play interests of children to their socio-economic status. Journal of genetic psychology 64: 129-138.

Bruner, J.S. 1961. The process of education. Random House, N.Y. 97 p.

Burch, W.R. 1966. Wilderness - the life cycle and forest recreational choice. Journal of Forestry 64(9): 606-610.

Burch, W.R. and Wenger, W.D. 1967. The social characteristics of participants in three styles of family camping. Research Paper PNW-48. Forest Service, Pacific Northwest Forest and Range Experimental Station, Portland, Oregon. 30 p.

Burch, W.R. 1969. The social circles of leisure: competing explanations. Journal of Leisure Research 1: 125-147.

Burch, W.R. and Shelstad, M. 1971. Nature, forests and urban children - some preliminary findings. Yale University. 19 p.

Burdge, R.J. 1969. Levels of occupational prestige and leisure activity. Journal of Leisure Research 1: 262-274.

Burton, W.H., Kimball, R.B. and Wing, R.L. 1960. Education for effective thinking. Appelton-Century-Croft, New York. 508 p.

Campbell, F.L., Hendee, J.C. and Clark, R. 1968. Law and order in public parks. Parks and Recreation III(12): 28-31, 51-55.

Campbell, F.L. 1970. Participant observation in outdoor recreation. Journal of Leisure Research 2: 226-235.

Catton, W.R. and Hendee, J.C. 1968. Wilderness users: what do they think? American Forests 74(9): 28-31, 60, 61.

Clarke, A.C. 1956. The use of leisure and its relation to levels of occupational prestige. American sociological review 21: 301-307.

Clarke, R.N., Hendee, J.C. and Campbell, F.L. 1971. Values, behavior, and conflict in modern camping culture. Journal of Leisure Research 3: 143-159.

Cramer, M.W. 1950. Leisure time activities of economically privileged children. Sociology and Social Research 34: 444-450.

Cunningham, D.A., Montoye, H.J., Metzner, H.L. and Keller, J.B. 1970. Active leisure activities as related to occupation. Journal of Leisure Research 2: 104-111.

Department of Indian Affairs and Northern Development. 1966a. Visitors to the national parks - a summary report. Park Planning Division, Recreational Research Report 23, Ottawa. 18 p.

Department of Indian Affairs and Northern Development. 1966b. An appraisal of public reaction to campground facilities and standards at two Jack Lake campgrounds, Banff National Park. 1965. Parks Planning Division, Recreational Research Report 20, Ottawa. 21 p.

Devall, W.B. 1970. Conservation: an upper middle class social movement: a replication. Journal of Leisure Research 2: 123-126.

Dewey, J. 1963. Experience and education. Collier-MacMillan, London. 91 p.

Dimock, H.S. 1970. How to observe your group. Sir George Williams University, Montreal. 39 p.

Dixon, W.J. 1970a. Biomedical computer programs x-series supplement. University of California Press, Los Angeles. 260 p.

Dixon, W.J. 1970b. Biomedical computer programs. University of California Press, Los Angeles. 600 p.

Dorsey, A.H. 1968. Conservation educators and future resource use. Transactions North American Wildlife and Natural Resources Conference 33: 486-496.

Dowell, L.J. 1967. Recreational pursuits of selected occupational groups. Research Quarterly 38: 719-722.

Fenwick, N.J. 1969. Parks and open space in the Montreal Region now and the year 2000. A report to the Montreal Parks and Playgrounds Association, Montreal. 84 p.

Ferguson, G.A. 1971. Statistical analysis in psychology and education. McGraw Hill, Don Mills, Ontario. p. 492.

Flad, M. 1934. Leisure time activities of 400 persons. Sociology and Social Research 18: 265-274.

Foss, P.O. 1962. Federal agencies and outdoor recreation. Outdoor Recreation Resources Review Commission Study Report 13. Superintendent of Documents, Govt. Printing Office, Washington, D.C. 80 p.

Fox, J.F. 1934. Leisure-time social backgrounds in a suburban community. Journal of Educational Sociology 7: 493-503.

Frank, L.K. 1962. Outdoor recreation in relation to physical and mental health. p. 215-231. In Outdoor Recreation Resources Review Commission Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Gans, H.J. 1962. Outdoor recreation and mental health. p. 233-242. In Outdoor Recreation Resources Review Commission Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Garlick, J.K. 1969. Algonquin Park: a test case for Canada. Pulp and Paper Magazine of Canada 70(1): 40-47.

George, R.W. 1967. A comparative analysis of conservation attitudes where conservation education is a part of the educational experience. Transactions North American Wildlife and Natural Resources Conference 32: 199-221.

Gerstle, J. 1961. Leisure, taste and occupational milieu. Social Problems 9: 56-58.

Green, A. 1964. Recreation, leisure and politics. McGraw Hill, New York. 194 p.

Gump, P. and Sutton-Smith, B. 1955. Activity-setting and social interaction: a field study. American Journal of Orthopsychiatry 25: 755-760.

Hall, D.M. 1950. The dynamics of group discussion. The Interstate Printers and Publishers, inc., Danville, Illinois. 89 p.

Harry, J., Gale, R. and Hendee, J.C. 1969. Conservation - an upper middle class social movement. Journal of Leisure Research 1: 246-254.

Hauser, P.M. 1962. Demographic and ecological changes as factors in outdoor recreation. p. 27-59. In Outdoor Recreation Resources Review Commission. Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Havighurst, R.J. and Feigenbaum, K. 1959. Leisure and life style. American Journal of Sociology 64: 396-404.

Havighurst, R.J. 1961. The nature and values of meaningful free-time activity. P. 309-344. In Kleemier, R.W. (ed.), Aging and Leisure. Oxford University Press, New York.

Hawkins, H. and Walters, J. 1952. Family recreation activities. Journal of Home Economics 44: 623-626.

Hendee, J.C., Catton, W.R., Marlow, L.D. and Brockman, C.F. 1968. Wilderness users in the Pacific Northwest - their charaeteristics, values, and management preferences. Forest Service Research Paper PNW-61. U.S.D.A. Forest and Range Experimental Station, Portland, Oregon. 92 p.

Hendee, J.C., Gale, R. and Harry, J. 1969. Conservation, politics and democracy. Journal of Soil and Water Conservation 24(6): 212-215.

Hendee, J.C. 1969a. Rural-urban differences reflected in outdoor recreation participation. Journal of Leisure Research 1(4): 333-341.

Hendee, J.C. 1969b. Appreciative vs. consumptive use of wildlife refuges: studies on who gets what and trends in use. Transactions North American Conference on Wildlife and Natural Resources: 252-264.

Hendee, J.C. and Harris, R.W. 1970. Foresters' perception of wilderness - user attitudes and preferences. Journal of Forestry 68(12): 759-762.

Hecock, R.D. 1970. Recreation behavior patterns as related to site characteristics of beaches. Journal of Leisure Research 2: 237-250.

Heckscher, A. and de Grazia, S. 1959. Executive leisure: 5000 executives report on how much they have, what they do with it, and what they look for? Harvard Business Review 37: 6-16, 144-156.

Hewes, L.I. and Hammett, F. 1962. A study of present and future needs of the people living in the New York-New Jersey-Philadelphia area. p. 161. In Outdoor Recreation Resources Review Commission. The future of outdoor recreation in metropolitan regions of the United States. Study Report 21, Vol. 2. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Hewston, J.G. and Franklin, D.R. 1969. Recreational use patterns at Flaming Gorge Reservoir 1963-65. Bureau of Sport Fisheries and Wildlife. Resource Publication 70, Washington, D.C. p. 80.

Heyens, R. and Zander, A. 1953. Observation of group behavior. p. 381-417. In Festinger, L. and Katz, D. (eds.), Research methods in the behavioral sciences. Dryden, N.Y.

Hopkins, W.S. 1969. Forest recreation research. Statistical Reporter, November: 61-69.

Horst, P. 1965. Factor analysis of data matrices. Holt, Rinehart and Winston, Inc., New York. 730 p.

Hutchins, H.C. 1971. Learning about leisure in relation to the environment. Journal of Outdoor Education 5(1): 16-19.

Inhaber, J. 1972. Behavior and attitudes of suburban forest recreationists in the Morgan Arboretum, Que. Unpublished thesis, Department of Woodlot Management, Macdonald College. 142 p.

Jahoda, M. Deutsch, M. and Cook, S. 1951. Research methods in social relations. Vol. I. Dryden, New York. 421 p.

James, H.E. and Moor, F.T. 1940. Adolescent leisure in a working class district. Occupational Psychology 14: 132-145.

Jankowski, J.C. 1967. Conservation education: a challenge for the liberal arts college. Transactions North American Wildlife and Natural Resources Conference 32: 186-199.

Jones, A.R.C. 1966. The Morgan Arboretum Association annual report to 31st May, 1966. Department of Woodlot Management, Macdonald College, Macdonald College P.O. 27 p.

Jones, A.R.C. 1967. The Morgan Arboretum Association annual report to 31st May, 1967. Department of Woodlot Management, Macdonald College, Macdonald College P.O. 32 p.

Jones, A.R.C. 1968. The Morgan Arboretum Association annual report to 31st May, 1968. Department of Woodlot Management, Macdonald College, Macdonald College P.O. 31 p.

Jones, A.R.C. 1969. The Morgan Arboretum Association annual report to 31st May, 1969. Department of Woodlot Management, Macdonald College, Macdonald College P.O. 31 p.

Jones, A.R.C. 1970. The Morgan Arboretum Association annual report to 31st May, 1970. Department of Woodlot Management, Macdonald College, Macdonald College P.O. 28 p.

King, D.A. 1968. Socio-economic variables related to campsite use. Forest Science 14(1): 46-54.

Knopp, T.B. 1972. Environmental determinants of recreation behavior. Journal of Leisure Research 4: 129-138.

Lapage, W.F. 1967. Camper characteristics differ at public and commercial campgrounds in New England. North East Forest Research Station, Research Note NE-59. Upper Darby, Pa. p. 8.

Lawley, D.N. and Maxwell, A.E. 1963. Factor analysis as a statistical method. Butterworth and Co. Ltd., London. 117 p.

Lime, D.W. and Cushwa, C.T. 1969. Wildlife esthetics and auto campers in the Superior National Forest. North Central Experimental Station Forest Service Paper N.C. 32. St. Paul, Minn. 8 p.

Lindsay, J.J. and Ogle, R.A. 1972. Socio-economic patterns of outdoor recreation use near urban areas. Journal of Leisure Research 4: 19-24.

Lively, C.E. 1958. Whither conservation education in American colleges. Transactions North American Wildlife and Natural Resources Conference 23: 576-584.

MacArthur, J.D. 1969. Education for recreation. Macdonald Journal 31(2): 32, 33.

Macdonald, M., McGuire, C. and Havighurst, R.J. 1949. Leisure activities and the socio-economic status of children. American Journal of Sociology 54: 505-519.

Mead, M. 1962. Outdoor recreation in the context of emerging American cultural values: background considerations. p. 1-25. In Outdoor Recreation Resources Review Commission Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Meyersohn, R. 1969. The sociology of leisure in the United States. Introduction and bibliography 1945-1965. Journal of Leisure Research 1: 53-68.

Montreal Council of Social Agencies. 1968. Sixty major study areas and their comparative socio-economic profiles in Metropolitan

Montreal. Special Report Series No. 672. Montreal Council of Social Agencies. Loose leaf. n.p.

Mueller, E. and Gurin, G. 1962. Participation in outdoor recreation: factors affecting demand among American adults. Outdoor Recreation Resources Review Commission Study Report 20. Superintendent of Documents, Govt. Printing Office, Washington, D.C. p. 94.

Myers, S.S. 1956. Educational programs of national organizations with discussions. Transactions North American Wildlife and Natural Resources Conference 21: 580-583.

Nash, J.B. 1962. The enlarging role of voluntary leisure-time associations in outdoor recreation and education. p. 157-186. In Outdoor Recreation Resources Review Commission Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Noe, F.P. 1971. Autonomous spheres of leisure activity for the industrial executive and blue collarite. Journal of Leisure Research 3: 220-249.

Northeastern Illinois Metropolitan Area Planning Commission. 1962. Outdoor recreation needs and preferences of the people of the Chicago area. p. 225-279. In Recreation Resources Review Commission Study Report 21, Vol. 1. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Patrick, C. 1945. Relation of childhood and adult leisure activities. Journal of Social Psychology 21: 65-79.

Peak, H. 1953. Problems of objective observation. p. 243-299. In Festinger, L. and Katz, D. (eds.), Research methods in the

behavorial sciences. Dryden, N.Y.

Peterle, T.J. 1961. The hunter - who is he? Transactions North American Wildlife and Natural Resources Conference 26: 254-266.

Peterle, T.J. 1967. Characteristics of some Ohio hunters. Journal of Wildlife Management 31: 375-389.

Outdoor Recreation Resources Review Commission. 1962a. National recreation survey. Study report 19. Superintendent of Documents, Govt. Printing Office, Washington, D.C. p. 394.

Outdoor Recreation Resources Review Commission. 1962b. The future of outdoor recreation in metropolitan regions in the United States. Study Report 21, Vol. 1. Superintendent of Documents, Govt. Printing Office, Washington, D.C. 286 p.

Reissman, L. 1954. Class, leisure, and social participation. American Sociological Review 19: 76-84.

Robinson, R. 1936. Leisure-time activities of the children of New York's lower west side. Journal of Educational Sociology 9: 484-493.

Runyon, R.P. and Haber, A. 1971. Fundamentals of behavioral statistics. Addison-Wesley, Don Mills, Ontario. p. 351.

Schnore, L.F. 1966. The rural-urban variable: an urbanite perspective. Rural Sociology 31: 131-143.

Seagoe, M.V. 1962. Children's play as an indicator of cross-cultural and intra-cultural differences. Journal of Educational Sociology 35: 278-283.

Sessoms, H.D. 1963. An analysis of selected variables affecting outdoor recreation patterns. Social Forces 42: 112-115.

Shomon, J.J. 1962. Quality in outdoor recreation. Audubon 64(5): 276-277.

Shuster, A.A. 1971. The Minnesota teacher attitude inventory as a prediction of leadership styles in a recreation setting. Journal of Leisure Research 3: 168-177.

Smith, J.W. 1962. Developments in the field of education affecting outdoor recreation resources. p. 133-155. In Outdoor Recreation Resources Review Commission, Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Solomon, M.J. and Hansen, E.A. 1972. Canoeist suggestions for stream management in the Manistee National Forest of Michigan. North Central Forest Experimental Station, Research Paper NC 77. St. Paul, Minn. 10 p.

Stewart, B.E. 1963. Recreational use of private land in a portion of eastern Maine. Maine Agricultural Experimental Station, University of Maine. Misc. Publ. 658. p. 47.

Stoddard, G.D. 1962. The merging pattern of outdoor recreation and education - problems, trends, and implications. p. 115-132. In Outdoor Recreation Resources Review Commission, Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Stone, G.P., Schuerell, R.P. and Koplan, E.Z. 1962. The future of outdoor recreation in the Greater St. Louis Metropolitan Region. p. 163-224. In Outdoor Recreation Resources Review Commission Study Report 21. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Thomas, L.C. 1956. Leisure pursuits by socio-economic strata. Journal of Educational Sociology 29: 367-377.

Thorsell, J.W. 1967. A trail use survey Banff and Yoho National Parks. Department of Indian Affairs and Northern Development, Recreational Research Report 33. p. 57.

Twight, B.W. 1968. The clientele of the University of Washington Arboretum. Unpublished master's thesis. University of Washington, Seattle. p. 82.

Wagar, J.V.K. 1947. Nature interpretation in forest recreation. Society American Foresters Proceedings: 163-172.

Wagar, J.V.K. 1958. Can weak-kneed public education retain rare wildlife values: with discussion. Transactions North American Wildlife and Natural Resources Conference 23: 526-532.

Wagar, J.A. 1963. Campgrounds for many tastes. U.S. Forest Service Research Paper Int.-6. Intermountain Forest and Range Experimental Station, Ogden, Utah. 10 p.

Wahlętz, E. 1956. The place of education and research in the formulation of a conservation policy. Transactions North American Wildlife and Natural Resources Conference 21: 45-52.

Wann, K.D., Dorn, M.S. and Liddle, E.A. 1969. Fostering intellectual development in young children. Teachers College Press, Columbia University, New York. 140 p.

Webber, M.M. 1962. Relations between the social-physical environment of outdoor recreation and mental and physical health. p. 243-250. In Recreation Resources Review Commission, Study Report 22. Superintendent of Documents, Govt. Printing Office, Washington, D.C.

Westenberger, W.J. 1970. How many of you drive whales? A plan for conservation education action. Transactions North American Wildlife and Natural Resources Conference 35: 403-412.

White, R.C. 1955. Social class differences in the uses of leisure. American Journal of Sociology 61: 145-150.

Whyte, W.F. 1951. Observational field-work methods. p. 494-513. In Jahoda, M., Deutsch, M. and Cook, S. (eds.), Research methods in social relations, Vol. II. Dryden, N.Y.

Wirth, L. 1938. Urbanism as a way of life. American Journal of Sociology 44: 1-24.

Witt, P.A. 1971. Factor structure of leisure behavior for high school age youth in three communities. Journal of Leisure Research 3: 213-219.

Witt, P.A. and Bishop, D.W. 1970. Situational antecedents to leisure behavior. Journal of Leisure Research 2: 64-77.

Wildland Research Center. 1962. Wilderness and recreation - a report on resources, values and problems. Outdoor Recreation Resources Review Commission Study Report 3. Superintendent of Documents, Govt. Printing Office, Washington, D.C. 352 p.

Zander, A. 1951. Systematic observation of small face-to-face groups. p. 516-538. In Jahoda, M., Deutsch, M. and Cook, S. (eds.), Research methods in social relations. Vol. II. Dryden, N.Y.

LIST OF APPENDICES

		Page
APPENDIX 1.	Field Trip Teaching Method	139
APPENDIX 2.	The Ten Trails Used for Field Trips	145
APPENDIX 3.	Reservation Forms	156
APPENDIX 4.	Text of Introduction, Quiz and Instructions	165
APPENDIX 5.	Teaching Aids and Demonstrations	171
APPENDIX 6.	Maps of Children's Home Communities	172
APPENDIX 7.	Field Trip Report Form	176
APPENDIX 8.	Behavior Variables from the Field Trip Report Form	182
APPENDIX 9.	Definitions	194
APPENDIX 10.	Socio-economic Variables	197
APPENDIX 11.	Narrative Field Trip Report Form	200
APPENDIX 12.	Form A	202
APPENDIX 13.	Instructions for Timer and Pouch	203
APPENDIX 14.	Guides Observing, Guides and Field Trips Observed	206
APPENDIX 15.	Correlation Matrix	207
APPENDIX 16.	Reliability of Field Trip Report Form Variables	213
APPENDIX 17.	Validity Data	216
APPENDIX 18.	Rotated Factor Matrix	278
APPENDIX 19.	Alternative Factor Analyses; Rotated Factor Matrices	282

A P P E N D I X 1

FIELD TRIP TEACHING METHOD

Guide-Group Discussions

These can be put in two categories, 1) feelings and 2) problem solving. Explanations of these categories and methods to use follow.

Feelings

These are conversations about how the children feel about the forest environment and what it means to them. These conversations result from you getting the group involved with the forest (seeing, touching, smelling, hearing, tasting). You have to provide opportunities for the group to experience all the forest components. However, let the children respond to the forest components in their own way. Let the children choose which components they want to get really involved with. (But make sure they have an opportunity to be aware of them all.)

Based on the children's interests, activities and responses, discuss with them WHAT THEY FEEL and WHY they feel that way about various forest components. Help them to correct any erroneous ideas or information on which they are basing their feelings.

Have discussions in which children can learn how other people enjoy and use the same forest values. Help the children to think out which activities and feelings they value more than others. Help them to realize which activities and behaviors go with which values.

Let the children behave according to their feelings, values and attitudes. When behavior has to be disciplined or limited by the group or by our three conservation norms discuss the reasons for this with the group.

Problem Solving

These are discussions to solve problems (usually questions) posed by you or the children. It is in these exchanges of information and questions that the children learn about the forest. The information discussed is dependent on the group's interests and responses to the forest.

Using feedback from the children you continually monitor the children's comprehension of the forest and adjust your problems and information to obtain maximum comprehension. Make the problems and information relative to the group's previous experiences and present field trip activities. Help the group to initiate activities in which they explore the forest and to which forestry concepts can be related.

In the ensuing problem solving discussions encourage the children to test out previous knowledge they have learned. These problem solving discussions are to be organized so that the children seek out and discover for themselves new knowledge about the forest. Get the group summarizing, comparing, interpreting, criticizing, evaluating, organizing, judging, and making assumptions about the facts and concepts used in the discussions.

Provide situations in which alternative solutions are possible so the children can practise arriving at group decisions. Provide facts so that the children can judge and evaluate solutions, plans and activities.

Discussion Management

The objective of the management is to exchange information with the children in a problem solving context so the children seek out and discover new knowledge for themselves. This means problems, usually in the form of questions, are presented by you or by the children and their solutions or answers are found by the group. The following is a useful scheme for organizing and understanding problems. (Hall 1950)

TYPE OF PROBLEM	SOLUTION	SAMPLE QUESTIONS TO ASK
1) Confused situations in which observations, facts, concepts are not clear.	Observations, facts, concepts which clarify a situation	What colour (shape,size,etc.)is...? How is ... different from ... ? Can you describe ... ? What caused ... ? What will happen if ... ? Why doesn't ... instead of ... ? How does ... ?
2) A situation which requires a plan or activity to solve.	A plan or activity which will accomplish a task	How would you find out ... ? What would you do to ... ?
3) A plan or activity which requires organized group action.	Group carries out a plan or activity to accomplish something	We want to ... How are we going to ... ? Who is going to ... ?
4) Studying alternative solutions to problems	Group decides which alternative is the best	Is this ... or ... or ... ? Will this ... or .... or ... ? Shall we do ... or ... or ... ? Do you want to ... or ... or ... ?

Problem Solving

These are the procedures to use to solve problems.

1) Make sure the children understand the question or problem.

2) Get them to give a tentative answer or answers.

3) Have them recall and collect pertinent facts and observations.

4) Have them evaluate the facts and observations to prove or disprove the answer(s).

5) Test the answers by describing a test or actually doing a test.

6) Revise or confirm the original answer(s) or come up with a different answer.

7) Repeat the above until the group is satisfied with the answer. A satisfying answer is one which fits in and makes sense with what the children already know and which correctly predicts an outcome when tested.

From Step 2 you can get several situations, wrong answers, no answers, right answers and combinations of these. The outlined procedure is followed in all cases except you may want to change the context of its use. For "no answers" you might collect more facts and observations or ask simpler questions to clarify the original problem. For a "right answer" you might follow the steps to see if the group understands the implications of their answer or if they are able to confirm or prove the answer is right or another problem can be posed using this correct answer as fact.

Your Approach

First you must become friends with the children but let them know you are their leader. Be relaxed and casual. Gain the trust and respect of the children and help them to feel secure and confident. Thus you have to be enthusiastic and sincere.

Accept each group for what it is. Don't classify them as bad or good. Groups will be different. This means some things will be easier to do with some groups than other groups. However, for these same groups other activities will be easier to do. Notice, respect, and appreciate these

differences. The most important point is that the children ENJOY the forest experience.

Listen carefully to what the children have to say. Relate to what they say. Once an answer or question is given consider it the property of the group and not of a particular child (or yours). When necessary SUMMARIZE the group's ideas and concepts.

DON'T downgrade or ridicule any question, answer or comment given. Encourage every child. Involve all children in the discussions. Make sure the shy and quiet have a chance to participate. In a tactful manner restrain the children who monopolize discussions and activities.

Discipline

The children are allowed to do whatever they want so long as their behavior does not oppose what the group as a whole wants to do. Also you prohibit any behavior which contravenes our three forest conservation norms:

1. Protecting the forest environment.
2. Respecting other people's enjoyment and use of the forest environment.
3. Heeding outdoor safety precautions.

To enforce these limitations first of all explain the reasons why the behavior in question can't be allowed. Repeat the reasons every time there is an incident. When it is obvious reasoning isn't going to influence the child to stop, try group pressure. That is having the rest of the group support and enforce the norms on the children involved. If this too fails, the third attempt is to lay down rules which have to be followed. If this fails try using rewards and punishment or the threat of it to get the appropriate behavior. In your discipline attempts, you

are to follow this order precisely:

1) reasoning
2) repeated reasoning
3) group pressure
4) rules
5) rewards and threats

Examples of Activities

Guide Interaction - feelings (I love red flowers)
(discussion) problem solving (Why is this tree dying?)

Forest Interaction - passive observation (scenic walk, conversations about nature)
active observation (exploring, turning over rocks for bugs)
expressive physical activity (climbing trees, running)
role playing (wolf howling, going hunting)

Social Interaction - athletic games (tag, rock throwing competition)
private conversations (not connected with out-of-doors)
social games, role playing (sick jokes, war games, boy-girl chases)

A P P E N D I X 2

THE TEN TRAILS USED FOR FIELD TRIPS

Morgan arboretum

2

Morgan arboretum

3

Morgan arboretum

SCALE 800' = 1"

4

Morgan arboretum

5

Morgan arboretum

6

Morgan arboretum

7

Morgan arboretum

SCALE 300' = 1"

8

Morgan arboretum

9

Morgan arboretum

SCALE 200' = 1"

10

Morgan arboretum

A P P E N D I X 3

RESERVATION FORMS

MORGAN ARBORETUM ASSOCIATION

MACDONALD COLLEGE
P.Q. CANADA
tel. 453-6580 ext. 317

FOREST CONSERVATION FIELD TRIPS

Guided two-hour field trips will be available Monday to Friday during May and June for grades kindergarten to grade four. The Morgan Arboretum has 600 acres of natural forest and plantations as well as several ponds teeming with life. These natural resources, an interesting knowledgable guide, teaching aids like bird blinds, insect traps, soil pits etc. provide an enjoyable educational experience for children.

Before and after the field trip guides have short discussions with the children about forest conservation and forest manners. With the guide, the children roam through the forest discovering the forest environment and basic ecological concepts.

After the field trip each child receives a one-year-old red pine tree in a peat pot which can be taken home and planted - pot and all!

Field trips are at 9:30 a.m. and 1:30 p.m. Field trips are taken in groups of 10 to 20 children. Our five guides can handle up to 100 children at a time. To cover part of the cost of this programme, there is a charge of 50 cents per child. This will probably be the last year we can offer this programme at this low price.

Field trips may be arranged through the Department of Woodlot Management, Macdonald College, P.Q. Please call 453-6580, local 326.

J.D. MacArthur,
Curator,
Morgan Arboretum.

April, 1971.
JDM: DR

MORGAN ARBORETUM ASSOCIATION

MACDONALD COLLEGE
P.Q. CANADA
tel. 453-6580 ext. 317

EXCURSION SCIENTIFIQUE SUR LA CONSERVATION DE LA FORET

Des excursions scientifiques de deux heures seront offertes du lundi au vendredi pendant les mois de mai et de juin pour les élèves des maternelles et du cours élémentaire jusqu'à la 4ième année inclusivement. L'Arboretum Morgan offre 600 acres de forêt naturelle et de plantations ainsi que plusieurs étangs qui fourmillent de vie. Ces resources naturelles, un guide averti et intéressant, du matériel d'enseignement tel que des caches d'oiseaux, des trappes d'insecte, des fosses de sable,etc., procurent aux enfants une expérience éducationnelle très agréable.

Les guides organisent de courtes discussions avec les enfants sur la conservation de la forêt et les habitudes en forêt avant et après ces excursions scientifiques. Les enfants s'aventurent en forêt avec leur guide et découvrent l'environnement forestier et des principes écologiques de base.

Après l'excursion scientifique, chaque enfant reçoit un pin rouge d'un an dans un pot avec de la tourbe qu'il peut apporter et planter chez lui.

Les départs se font du terrain de stationnement de l'Arboretum à 9.30 a.m. et 1.30 p.m. Les excursions regroupent de 10 à 20 enfants et nos cinq guides peuvent recevoir jusqu'à 100 enfants à la fois. Pour défrayer une partie du coût de ce projet, nous chargeons 50 cents par enfant. C'est probablement la dernière année que nous pouvons offrir ces excursions à un prix aussi bas.

Ces excursions scientifiques peuvent être organisées en entrant en contact avec le Département de l'Aménagement des Boisés, Collège Macdonald, P.Q. Veuillez téléphoner au numéro suivant: 453-6580, local 326.

April, 1971.
JDM:DR

J.D. MacArthur,
Curator,
Morgan Arboretum.

FORM I

FIELD TRIP APPOINTMENTS

SCHOOL - Name: . . . . . .

Address: . . . . . .

Telephone: . . . . . Contact: . . . . . .

Teacher: . . . . . .

Grade: . . . . . .

Children (each grade) . . . . . .

Adults (except teacher) . . . . . .

Time: . . . . . .

Date: . . . . . .

Principal: . . . . . .

SCHOOL - Name: . . . . . .

Address: . . . . . .

Telephone: . . . . . Contact . . . . . .

Teacher: . . . . . .

Grade: . . . . . .

Children (each grade) . . . . . .

Adults (except teacher) . . . . . .

Time: . . . . . .

Date: . . . . . .

Principal . . . . . .

FORM II

BOOKINGS FOR FOREST CONSERVATION FIELD TRIPS

Date	Time	Name, Address & Phone No. of Contact	Group	Total No. Ch. & Ad.	Amount Paid

THE

Morgan arboretum

Confirms your Field Trip

Pay Guide by cheque

payable to THE MORGAN ARBORETUM

Always wear boots!

TEACHER ----------

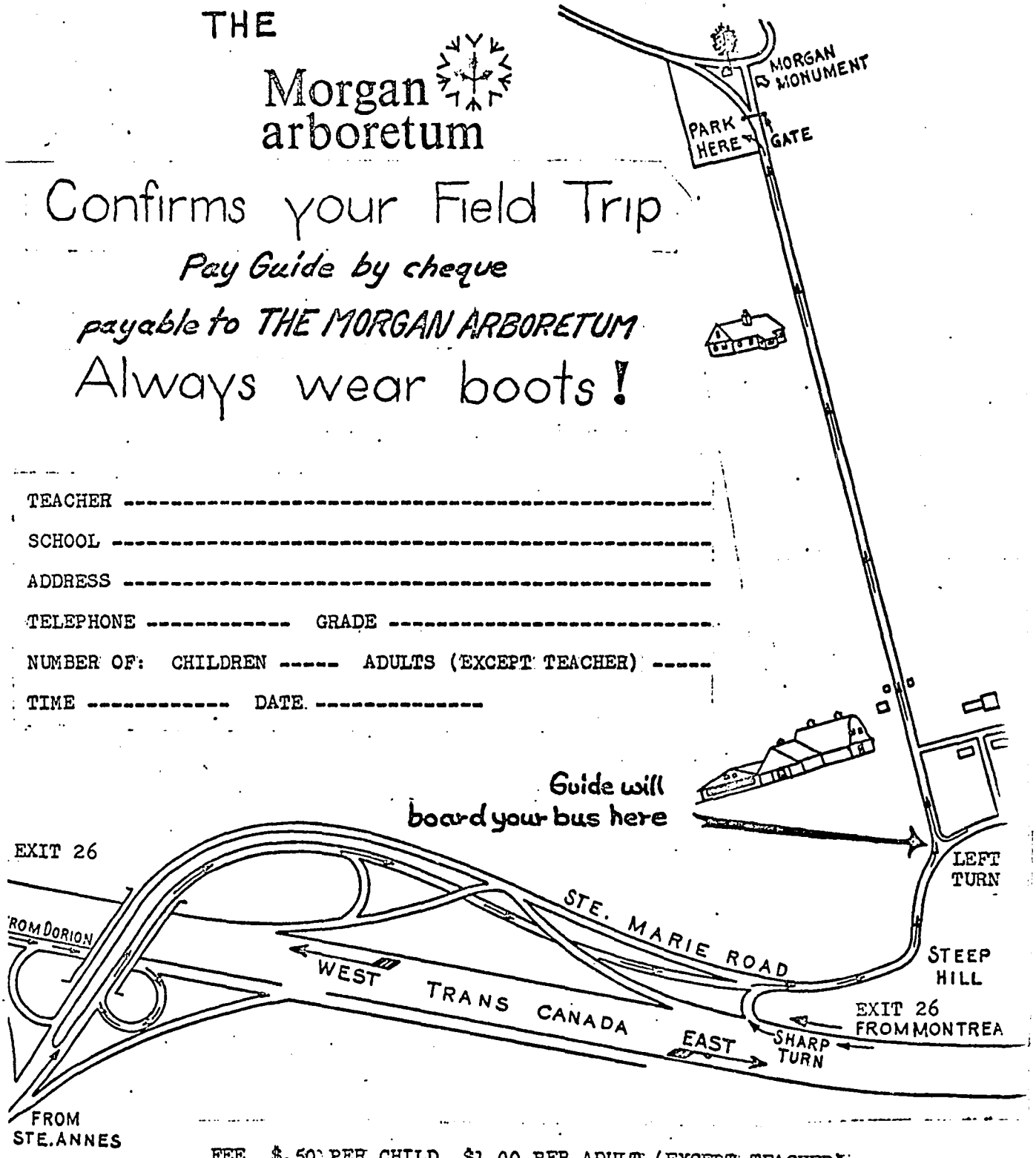
SCHOOL ----------

ADDRESS ----------

TELEPHONE ---------- GRADE ----------

NUMBER OF: CHILDREN ----- ADULTS (EXCEPT TEACHER) -----

TIME ---------- DATE ----------



FEE $.50 PER CHILD $1.00 PER ADULT (EXCEPT TEACHER)

THE

Morgan arboretum

Confirme votre Excursion

Payez le guide par cheque
à l'ordre de MORGAN ARBORETUM

Les bottes de caoutchouc sont toujours de mise !

ECOLE ----------

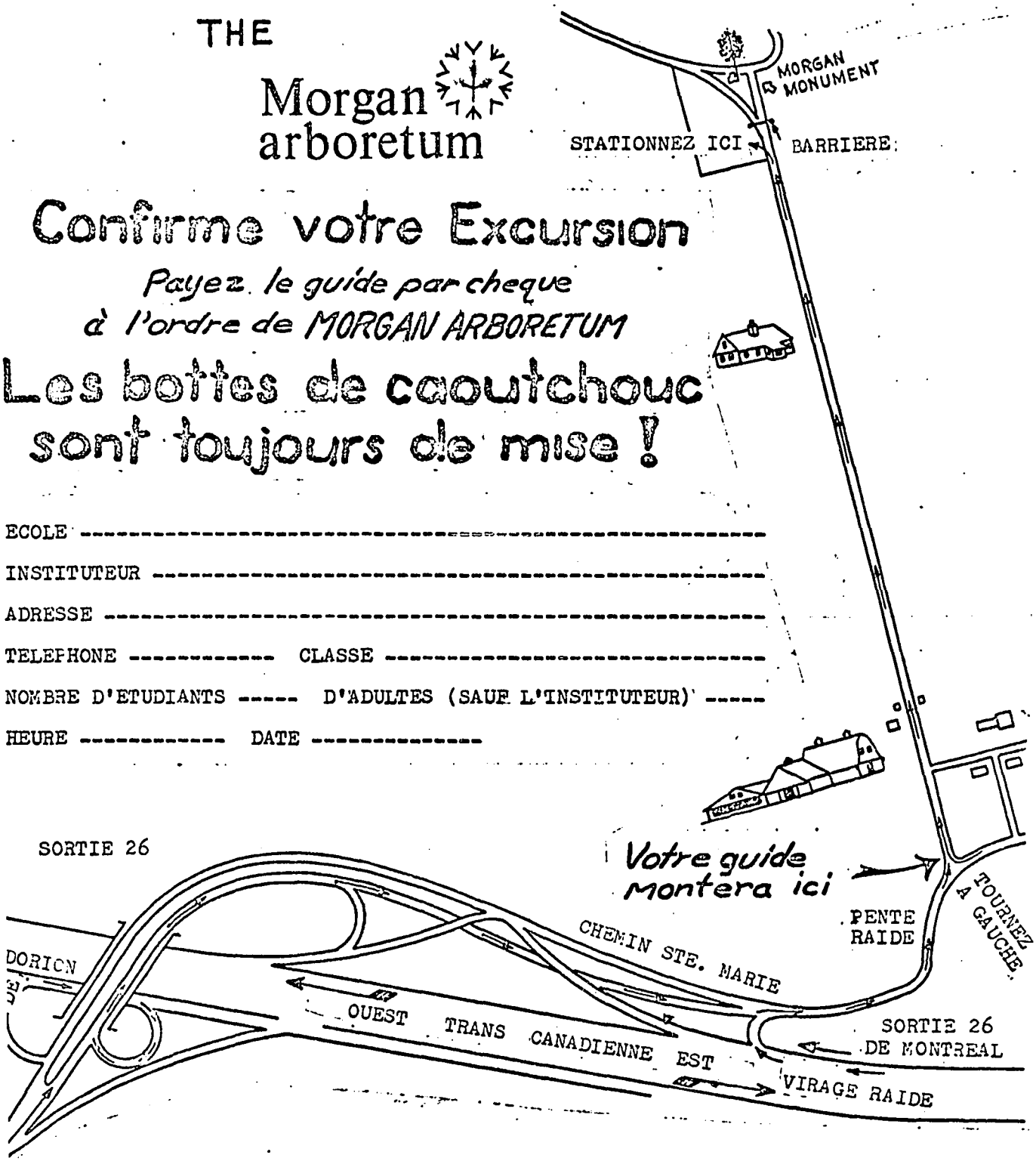
INSTITUTEUR ----------

ADRESSE ----------

TELEPHONE ---------- CLASSE ----------

NOMBRE D'ETUDIANTS ----- D'ADULTES (SAUF L'INSTITUTEUR) -----

HEURE ---------- DATE ----------



COUT: $.50 PAR ENFANT, $1.00 PAR ADULTE(SAUF L'INSTITUTEUR)

YOUR FOREST CONSERVATION FIELD TRIP

These field trips are designed to give children an exciting outdoor experience. Whether it's splashing through puddles, rolling down gentle slopes, trying to catch a wriggling tadpole, listening in awe to the clear whistles of a baltimore oriole or talking with the guide about ecology while clambering over a mossy log, children will find the 600-acre Morgan Arboretum thrilling. Groups of native and exotic trees, a botanical trail, a bird sanctuary, soil and water conservation projects, woodland improvements such as tree planting, pruning, timber harvesting and related forestry and wildlife activities are available for children to explore. A guide will competently look after your class and show them the wonders of nature that they have heard about in your science lessons.

A FEW HINTS AND LIMITATIONS!

Rubber boots are necessary for dry warm feet. Long sleeved shirts and long pants are good protection from mosquitoes. If it is cold or rainy wear suitable outdoor clothing. Don't forget the insect repellent; but do use it with respect and care - it is poisonous.

Please help us to conserve the arboretum by not allowing your group to pick wildflowers or to collect things. Woodland flowers would quickly become extinct in our woods if our visitors started picking them.

The fee for these field trips is 50 cents per child and $1.00 per adult (except for the teacher). WE PREFER TO HAVE JUST THE TEACHER ON THE FIELD TRIP WITH THE CHILDREN. Any accompanying adults can have their own guided field trip; or (without the $1.00 fee) walk around the arboretum on their own.

The guides are quite happy to conduct tours when it is raining. In fact some groups thoroughly enjoy adventuring in the forest in the rain, (practically no mosquitoes). If you do decide to cancel because of bad weather, please phone us (before 8:45 a.m.) and we will try to reschedule you; however, this is not always possible because of advance bookings.

Unfortunately, groups are not allowed to eat their lunches in or around the arboretum. From previous experience, we have found we do not have the facilities for this and the noise and litter from the thousands on these field trips ruin the enjoyment of the quiet woodland setting for other people. Natural wooded areas near Montreal are in such short supply that we can't sacrifice their beauty and aesthetics for daily picnicing.

If you have been covering a special topic in science and you would like your class to see this or something related to it, please don't hesitate to mention this to the guide.

NOTE: Make sure the bus company and your bus driver clearly understand your arrival and departure times.

VOTRE EXCURSION DE CONSERVATION

Ces excursions de conservation sont destinées à offrir aux enfants une passionnante expérience en plein air. Si on s'éclabousse dans des flaques d'eau, si on roule en bas de douces pentes, si on essaye d'attraper un têtard remuant, si on écoute avec respect les sifflements des oiseaux ou si l'on discute de biologie avec un guide tout en escaladant un tronc moussu, les enfants trouveront attrayant les 600 acres de l'Arboretum Morgan. Des groupes d'arbres indigènes et exotiques, un sentier botanique, un sanctuaire d'oiseaux, des projets de conservation du sol et des eaux, des améliorations des terres boisées, telles que, plantations d'arbres, tailles, récoltes de bois d'oeuvre et des activités en rapport avec la forestrie et la faune sont intéressantes à découvrir pour les enfants. Un guide compétent prendra soin de vos classes, et leur montrera les merveilles de la nature, dont ils avaient entendues parler dans leurs leçons de science.

QUELQUES INDICATIONS ET LIMITATIONS!

Des bottes de caoutchouc sont nécessaires pour conserver les pieds au sec et au chaud. Des chemises à manches longues et de longs pantalons sont une bonne protection contre les moustiques. Si le temps est froid ou pluvieux portez un vêtement d'extérieur approprié. N'oubliez pas un insecticide, mais utilisez le avec respect et précaution, c'est du poison.

Aidez-nous s'il vous plaît à conserver l'Arboretum en n'admettant pas que votre groupe cueille des fleurs sauvages. Ces fleurs des bois seraient en voie de disparition dans nos forêts si nos visiteurs commençaient à les cueillir.

Ces promenades sont destinées au plaisir et à l'éducation des enfants, naturellement cela est gratuit pour le professeur. Les parents et les groupes de professeurs devront payer un dollar chacun.

Les guides sont très heureux de diriger les promenades quand il pleut. En fait, certains préfèrent s'aventurer en forêt sous la pluie, (il n'y a pratiquement pas de moustiques). Si vous décider d'annuler pour cause de mauvais temps, téléphonnez-nous s'il vous plaît et nous essaierons de vous réinscrire; cependant ceci n'est pas toujours possible à cause du nombre des réservations.

Malheureusement, ces groupes ne sont autorisés à manger leur repas ni dans l'Arboretum, ni aux alentours. D'une expérience antérieure, nous avons conclu que nous ne pouvions pas faciliter cela; le bruit et le désordre provenant des milliers de personnes en promenade ruinent le plaisir du cadre tranquille des bois pour les autres visiteurs. Les régions boisées naturelles près de Montréal sont si rares que nous ne pouvons pas sacrifier leur beauté et leur esthétique pour le pique-nique quotidien.

Si vous avez couvert un sujet spécial en science et si vous désirez le voir ou étudier quelque chose en rapport avec lui, s'il vous plaît, n'hésitez pas à en faire mention au guide.

A P P E N D I X 4

INTRODUCTION, QUIZ, AND INSTRUCTIONS

Introduction

My name is _____. I am your guide for today. Before we go into the forest, we are going to have a talk about the forest.

Je m'appelle _____. Je suis votre guide pour aujourd'hui. Avant d'aller dans la forêt, on va discuter de la forêt, un peu.

Quiz

L

These are pictures of things which you find in the forest. Look at all the pictures. I want you to pick the one thing you like the very best. Now just pick one thing. Now when I point to the thing you like the best, raise your hand. Now, you can just raise your hand once. How many like this the best? (etc. 9X)

D

I want you to choose the one thing you really don't like. Now just pick one thing. Now when I point to the thing you really don't like raise your hand. Now you can just raise your hand once. How many really don't like this? (etc. 9X)

N

Some of the pictures you see are of trees and flowers. Can you tell me the names of some of the trees and flowers which grow in the forest?

P

Can you tell me what birds and animals do in the forest?

A

What would happen if it never rained on the forest?

P

I am going to tell you some stories about things children do in the forest, I want you to tell me which things you would do.

One day in the forest three boys find a pond with a lot of frogs in it. One boy wants to catch a frog and take it home. The second boy wants to catch some of the frogs, look at them and then leave them in the pond. The third boy wants to throw rocks at the frogs.

Which thing would you do? Raise your hand when I say the thing you would do. You can just raise your hand once. How many would catch a frog and take it home? How many would catch and look at the frogs and put them back in the pond? How many would throw rocks at the frogs?

R

After going for a long walk in the forest three boys stop for a rest. They each drink a bottle of pop. One boy wants to carry the empty bottles home to the garbage. The second boy wants to break the empty bottles on a rock. The third boy wants to hide the empty bottles behind a tree.

Which thing would you do? Raise your hand when I say the thing you would do. You can just raise your hand once. How many would carry the empty bottles all the way home to the garbage? How many would break the empty bottles on a rock? How many would hide the empty bottles behind a tree?

S

One day three boys playing in the forest see some men working. The men are cutting down trees. One boy wants to sneak up close to the men and watch them. The second boy wants to run up to the men and ask if

they can watch. The third boy wants to stand far away and watch the men.

Which thing would you do? Raise your hand when I say the thing you would do. You can just raise your hand once. How many would sneak up close and watch the men? How many would run up to the men and ask if they can watch? How many would stand far away and watch the men?

L

Voici des photos de choses qu'on retrouve dans la forêt. Regardez toutes ces photos. Choisissez celle que vous préférez. Choisissez en seulement une. Levez votre main quand vous verrez celle que vous aimez le mieux. Levez votre main seulement une fois. Combien préfère celle-ci?

D

Maintenant, choisissez quelque chose que vous n'aimez pas. Choisissez en seulement une. Levez votre main quand vous verrez la chose que vous n'aimez pas. Levez votre main seulement une fois. Combien n'aiment pas ceci?

N

Voici quelques photos de fleurs et d'arbres que l'on trouve dans la forêt. Pouvez-vous en nommer quelques unes?

P

Pouvez-vous me dire ce que les oiseaux et les animaux font dans la forêt?

A

Qu'est-ce qui arriverait s'il ne pleuvait jamais dans la forêt?

P

Je vais vous raconter quelques histoires à propos de choses que les enfants font dans la forêt. Je veux que vous me disiez ce que vous feriez.

Un jour, dans la forêt, il y avait trois garçons et ils ont trouvé un étang plein de grenouilles. Un des garçons veut attraper une grenouille et l'apporter chez lui. Le second veut en attraper quelques unes, les examiner, puis, les remettre dans l'étang. Le troisième garçon veut lancer des roches aux grenouilles.

Laquelle de ces choses feriez-vous. Levez votre main quand je nommerai la chose que vous feriez. Levez votre main seulement une fois. Combien attraperait la grenouille et l'apporterait à la maison? Combien d'entre vous en attraperait une, la regarderait, puis la remettrait dans l'étang? Combien lancerait des roches aux grenouilles?

R

Il était une fois trois petits garçons qui, après avoir marché longtemps dans la forêt, s'assirent pour se reposer. Chaque garçon a bu une bouteille de liqueurs. Un garçon veut apporter les bouteilles vides à la maison pour les jeter dans la poubelle. Le second veut briser les bouteilles sur une roche, le troisième veut cacher les bouteilles vides derrière un arbre.

Que feriez-vous? Levez votre main quand je nommerai la chose que vous feriez. Levez votre main seulement une fois. Combien rameneraient les bouteilles vides à la maison pour les mettre dans la poubelle? Combien casseraient les bouteilles sur une roche? Combien les cacheraient derrière un arbre?

S

Un jour, trois petits garçons jouaient dans la forêt et aperçurent des hommes qui travaillaient. Les hommes abattaient des arbres. Un des petits garçons se faufille tout près des hommes et les regarde travailler.

Le second s'approche vers les hommes et leur demande s'il peut les regarder travailler. Le troisième veut se tenir à l'écart puis regarder les hommes travailler.

Que feriez-vous? Levez la main quand je mentionnerai la chose que vous feriez. Levez la main qu'une seule fois. Il y en a combien que se faufilleraient tout près pour regarder les hommes? Combien s'approcheraient pour leur demander la permission? Combien se tiendraient à l'écart pour les regarder?

Field Trip Instructions

Now there are a few things you should know before we go into the forest. When we are in the forest stay close to me so you can see or hear me, otherwise you might get lost. Don't pick flowers here, because other children want to see them when they come here. Don't take things home from this forest because the birds and animals may need to use these things for food or something. Look for different things in the forest and we will have a talk about them.

When we are having a talk please pay attention and let the other children see and hear what the talk is about. Now ask lots of questions about the things you see and find in the forest.

Il y a quelque chose que vous devriez savoir avant qu'on s'aventure dans la forêt. Quand on sera dans le bois, restez en groupe et assez près de moi pour que vous puissiez me voir et m'entendre - sans ça vous pourriez vous perdre. Il ne faut pas cueillir de fleurs parce que les autres personnes qui vont venir aimeraient bien ça voir les fleurs eux aussi. On ne doit rien sortir de la forêt parce que les oiseaux et les animaux peuvent en avoir besoin pour se nourrir.

Quand on discutera, soyez sages et écoutez bien, puis arrangez vous pour que tout le monde ait la chance de voir et entendre ce dont on parlera.

N'ayez pas peur de poser des questions à propos de tout ce que vous verez et entendrez dans la forêt.

A P P E N D I X 5

TEACHING AIDS AND DEMONSTRATIONS

1. compass (10)
2. plasticized picture of ovenbird (10)
3. bird blind and bird feeder (2)
4. soil pit (1)
5. splash sticks (1)
6. particle trap (2)
7. insect traps (4)
8. dip nets and porcelain trays (3)
9. thermometers (4)
10. pictures representing the arboretum forest (10)

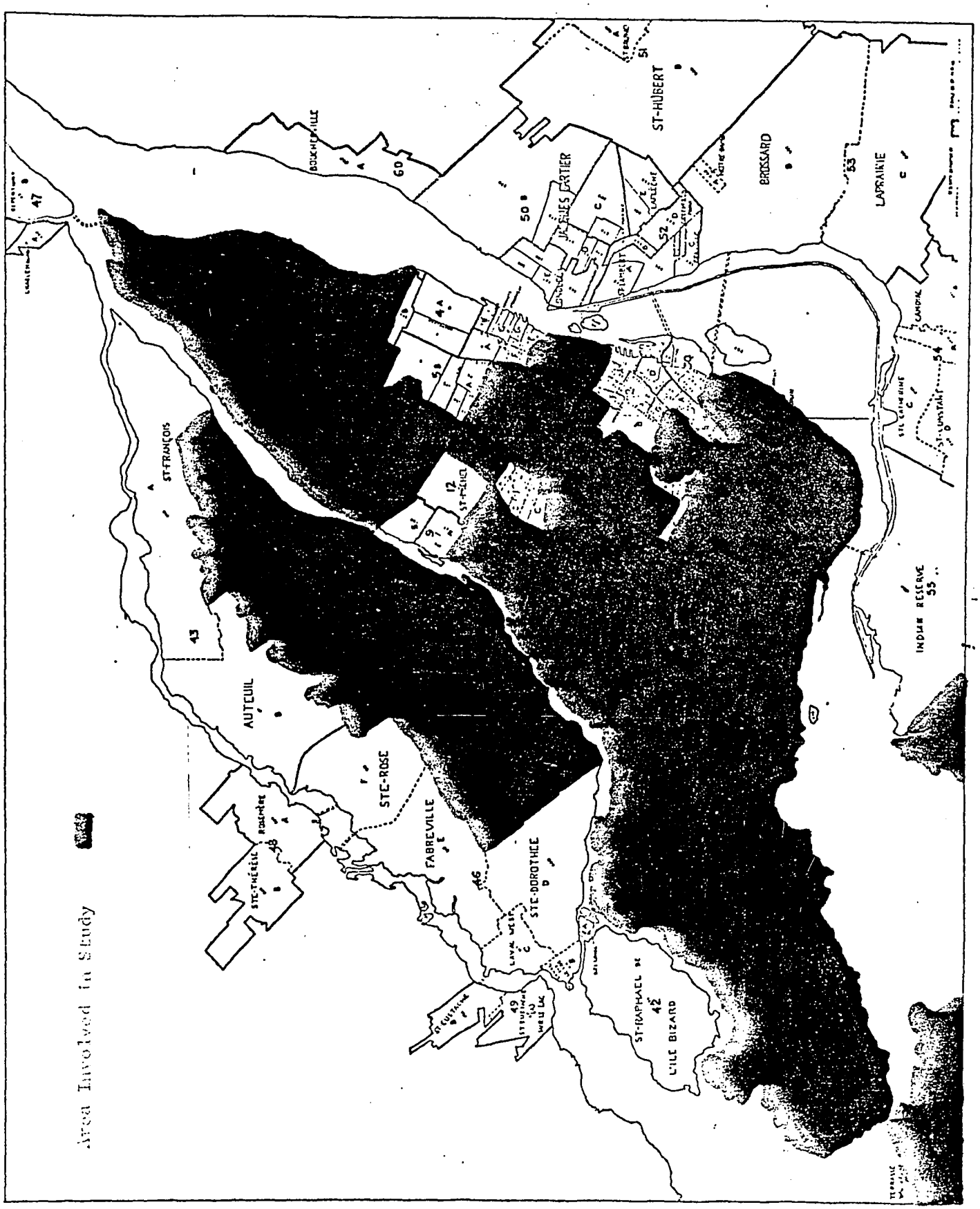
A P P E N D I X 6

MAPS OF CHILDREN'S HOME COMMUNITIES

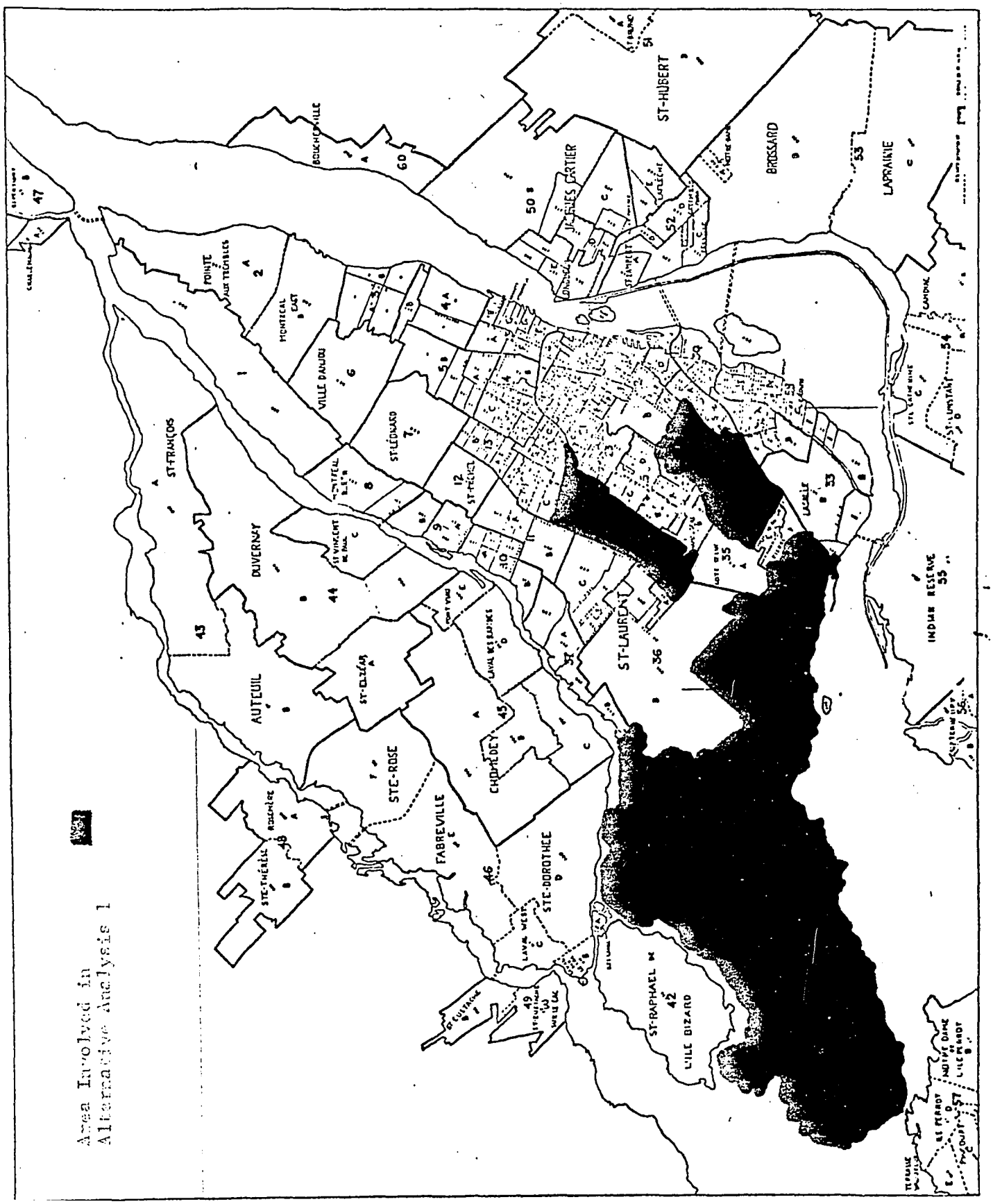
Factor Analysis Study Areas*		Alternative Analysis 1 Study Areas		Alternative Analysis 2 Study Areas	
1	28	20	38	1	16
2	31	24	39	2	17
3	32	28	40	3	18
6	33	32	41	6	31
7	34			7	33
8	35			8	37
10	36			10	44
11	37			13	45
13	38			14	57
14	39				
16	40				
17	41				
18	44				
20	45				
21	56				
23	57				
24	59				
25					

* Montreal Council of Social Agencies (1968)

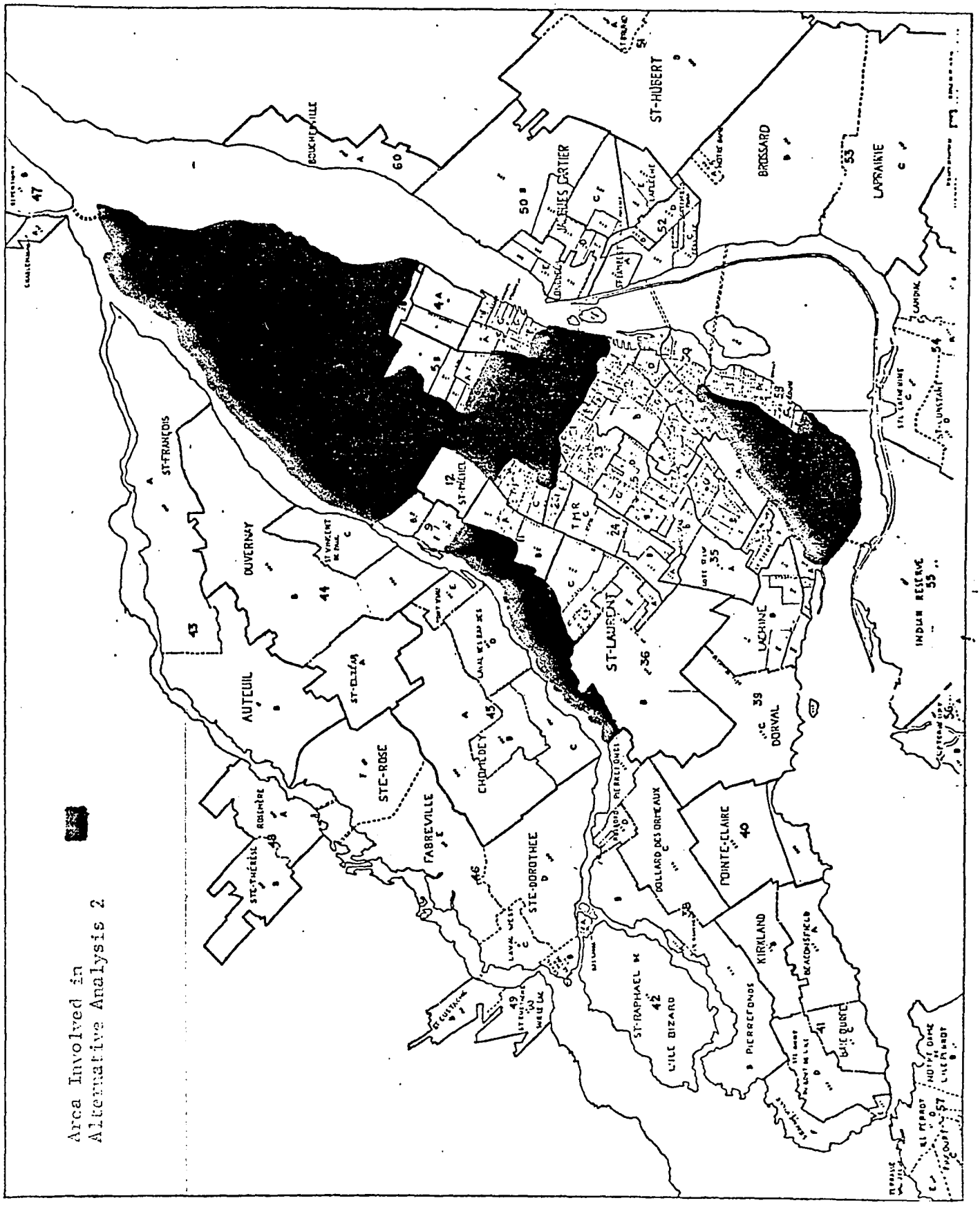
CHILDREN'S HOME COMMUNITIES



CHILDREN'S HOME COMMUNITIES



CHILDREN'S HOME COMMUNITIES



A P P E N D I X 7

THE FIELD TRIP REPORT FORM

Field Trip Report

Guide Interaction Content (% based on occurrence)

a) .... feelings
b) .... problem solving

Forest Interaction Content (% based on occurrence)

a) .... passive observation
b) .... active observation
c) .... expressive physical activity
d) .... role playing

Social Interaction Content (% based on occurrence)

a) .... athletic games
b) .... private conversations
c) .... social games, role playing

	G.I.	F.I.	S.I.	Interaction Sub Grouping (% based on occurrence)
a)	....	....	....	1
b)	....	....	....	2 - 4
c)	....	....	....	5 - 10
d)	....	....	....	more than 10

	G.I.	F.I.	Self Direction (check ✓)
1	....	....	No drive. Guide has to dominate.
2	....	....	Group has some self propulsion, but needs considerable push.
3	....	....	Domination from a strong single member or clique.
4	....	....	With a little prodding, group initiates and does activities.
5	....	....	Group spontaneously initiates and does activities.

			Distribution of Leadership (check ✓)
1	....	....	Guide does all the leading.
2	....	....	A few members always take leader roles. Rest are passive.
3	....	....	Some members take leader roles. Rest are passive.
4	....	....	Many members take leadership but one or two continually following.
5	....	....	Leadership is shared by all members of group.

			Variety of Activities (check ✓)
1	....	....	Little variety in activities, stick to the same things.
2	....	....	Some variety in activities.
3	....	....	Considerable variety in activities. Try out new activities.
4	....	....	Great variety in activities. Continually trying out new ones.

	G.I.	F.I.	Activity Origins (check ✓)
1	....	....	Activities depend on the requests of the guide. Guide has to start and direct activities.
2	....	....	Group looks to guide for suggestions and ideas for activities. Group is interested but waits for guide to indicate and sometimes initiate activities.
3	....	....	By encouragement and making suggestions guide can stimulate group to choose and initiate its activities.
4	....	....	Group initiates and does activities on its own. Guide just offers occasional comments and information.

Depth of Activities (check ✓)

1	....	....	Children are just spectators, don't get involved at all.
2	....	....	Little depth in activities, just scratching the surface, just going through the motions.
3	....	....	Some depth but children not increasing their skills.
4	....	....	Considerable depth in activities. Children able to utilize some of their ability.
5	....	....	Great depth in activities. Children find each a challenge to develop their abilities. Totally immersed in activities.

Adjustment Type (% based on occurrence)

a)	....	....	fight
b)	....	....	flight
c)	....	....	attention getting

Adjustment Amount (check ✓)

1	....	....	No adjustment or very little.
2	....	....	
3	....	....	Some adjustment but does not hinder activities.
4	....	....	
5	....	....	A lot of adjustment that does hinder activities.

Group Climate (check ✓)

1	....	Climate inhibits good fun, behavior and expression of desires, fears, and opinions.
2	....	Children express their individual needs and wants but nothing about the group's interests.
3	....	Children freely express their needs and desires but joke, argue and complain about the rest of the group's interests to the detriment of the group.
4	....	Children feel free to express their feelings and desires. They accept the rest of the group's interests and the importance of what the group as a whole wants.

Distribution of Discussion Interaction (check ✓)

1	....	Everyone tried to get out of questioning and answering.
2	....	Questioning and answering done by a few children.
3	....	Many children do some questioning and answering.
4	....	Questioning and answering are done by nearly all children.

Group Energy (number of children)

a) .... Hyperactive and extremely noisy, excessive screaming, running and scattering. Communications are yelled and repeated with limited success.

b) .... Active, noisy, quick to disperse and interact with the forest - normally will listen to communications.

c) .... Respond quietly and orderly to communications and the forest.

d) .... Withdrawn, very quiet, very passive - negligible response to communications and forest.

Guide - Child Rapport (number of children)

a) .... Antagonistic or resentful.

b) .... Indifferent toward guide; friendship neither sought nor rejected, non-communicative.

c) .... Friendly and interested. Attentive to guide's suggestions and behavior.

d) .... Intimate relations: openess and sharing, strong rapport.

Guide Functions (% based on occurrence)

a) .... Task

b) .... Group

c) .... Individual

Group Interaction Direction (% based on occurrence)

a) .... Forest then guide.

Forest - experience Outlook (number of children)

a) .... Antagonistic, unhappy, upset, or turned off.

b) .... Indifferent, blasé, little involvement with forest.

c) .... Interested, happy, enthusiastic, willing to do things in the forest and learn about it.

d) .... Ecstatic or awed, express strong favourable feelings about forest experiences, not particularly interested in learning about forest.

Relating Observations and Information (% based on occurrence)

a) .... Relate to the structure and functioning of the human body, family or home.

b) .... Relate to general knowledge gained from everyday experiences.

c) .... Relate to previous outdoor experiences with family or friends.

d) .... Relate to previous knowledge from books or class room.

Describing Observations and Information (check ✓)

1 .... Use very general nouns, verbs and adjectives to describe.

2 .... Use simple specific words to describe things and parts of things.

3 .... Use proper nouns and some complicated words. Words have narrow meanings and are well modified.

4 .... Can use scientific words that are not part of everyday language. They may require a definition and be fairly abstract.

Information Classification (% based on occurrence)

a) .... Names or descriptions of forest objects or their parts.
b) .... Processes or actions which forest objects do or which happen to them.
c) .... Abstractions giving explanations, reasons or predictions about processes or characteristics.

Group Use of Concepts (check ✓)

1 .... Group may repeat information right after it is given or imitate an action but does not pursue concepts much further than that.
2 .... Group recognizes, remembers and recalls concepts previously mentioned.
3 .... Group not only remembers concepts but compares them and reinterprets them in the light of new information and experiences.
4 .... Group is primarily interested in concepts to explain, predict, justify observations and abstractions.
5 .... Group discovers concepts on its own. Creates worthwhile explanations and analysis of situations.

Recognition of Problems (check ✓)

1 .... Group rarely notices any sort of problem.
2 .... Group identifies only superficial problems.
3 .... Group notices obvious problems, overlooks subtle ones.
4 .... Group has a questioning attitude and is intelligently curious.
5 .... Group has penetrating insight and consistently identifies problems.

Concern for Problems (check ✓)

1 .... Group has no capacity for a sustained attack on most problems.
2 .... Group does not discuss problems clearly; wanders, introduces irrelevant ideas.
3 .... Group will discuss problems and come up with a solution for the typical problem.
4 .... Group is persevering and is reluctant to leave a problem without completing it.
5 .... Group is unusually persistent in all problem solving efforts.

Flexibility with Problems (check ✓)

1 .... Group abandons problem after one attempt to solve.
2 .... Group relies on steady plodding, shows little ingenuity.
3 .... Group shows some resourcefulness.
4 .... Group has only occasional trouble suggesting new, effective ways to attack problems.
5 .... Group is highly imaginative; displays unusual ingenuity.

Use of Facts (check ✓)

1 .... Group accepts as truth whatever is said.
2 .... Group rarely presents or demands any sort of supporting evidence.
3 .... Group generally seeks the facts of the situation.
4 .... Group regularly seeks evidence and can judge how reliable and pertinent data is.
5 .... Group consistently bases conclusions on all facts properly evaluated.

Group Cooperative Judgment Level (check ✓)

1 .... Group jumps to conclusion or lets guide do most of the thinking.
2 .... Some cooperative thinking in considering alternate solutions but group gets tangled up in pet ideas or prejudices of a few.
3 .... Usually makes reasonable choice among obvious alternatives.
4 .... Group critically examines most possibilities but not yet an orderly process.
5 .... Group reaches final solutions after careful analysis of all data and everyone's ideas. Good pooling of ideas and orderly thought.

Method of Resolving Disagreements (check ✓)

1 .... Group waits for guide to resolve disagreement.
2 .... Group follows lead of one of its own leaders.
3 .... Strongest sub-group dominates the outcome of the decision.
4 .... Compromises are effected by each sub-group giving up something.
5 .... Group as a whole arrives at a solution that satisfies all children and that is better than any single suggestion.

Teacher Involvement (check ✓)

1 .... No teacher.
2 .... Very passive. Follows group and collects strays but negligible input into field trip.
3 .... Follows guide's lead; contributes to activities when guide requests or when she (he) is obviously needed.
4 .... Quick to contribute to activities and initiates some things on her own.
5 .... Attempts to dominate the field trip.

Teacher Discipline Style (check ✓)

1 .... Laissez-faire, children have complete freedom.
2 ....
3 .... Friendly, accepting, reasonable, strict when necessary.
4 ....
5 .... Noisy, dominant, rigid authoritarian.

Class Preparation (check ✓)

1 .... Special preparation for field trip.
2 ....
3 .... Preparation from normal class work.
4 ....
5 .... No preparation.

Information Content (check ✓)

Object	Mentioned	Discussed	Observed	Observed Commented	Observed Discussed	Observed Discussed in depth or Repeatedly
Birds	....	....	....	....	....	....
Bird Signs	....	....	....	....	....	....
Forest	....	....	....	....	....	....
Insects	....	....	....	....	....	....
Insect Signs	....	....	....	....	....	....
Mammals	....	....	....	....	....	....
Mammal Signs	....	....	....	....	....	....
Microorganisms	....	....	....	....	....	....
People	....	....	....	....	....	....
People Signs	....	....	....	....	....	....
Plants	....	....	....	....	....	....
Pond	....	....	....	....	....	....
Reptiles	....	....	....	....	....	....
Reptile Signs	....	....	....	....	....	....
Soil	....	....	....	....	....	....
Trees	....	....	....	....	....	....
Weather	....	....	....	....	....	....

P	R	S	Acceptance of Norms (number of children)
a)	....	....	Reasons are warm heartedly accepted and supported
b)	....	....	Reasons are accepted
c)	....	....	Reasons have to be repeated before they are accepted
d)	....	....	Group pressure as well as reasons are required
e)	....	....	Rules have to be laid down
f)	....	....	Rewards and/or punishment (or threat of) have to be used
g)	....	....	All the above fail

COMMENTS

APPENDIX 8

BEHAVIOR VARIABLES FROM THE FIELD TRIP REPORT FORM

Variable 1 Passive Observation

Forest Interaction Content (% based on occurrence)
a) .... passive observation

Variable 2 Active Observation

Forest Interaction Content (% based on occurrence)
b) .... active observation

Variable 3 Expressive Activities

Forest Interaction Content (% based on occurrence)
c) .... expressive physical activity
d) .... role playing

Variable 4 Small Group Forest Interaction

F.I. Interaction Sub Grouping (% based on occurrence)
.... 1
.... 2 - 4

Variable 5 Small Group Social Interaction

F.I. Interaction Sub Grouping (% based on occurrence)
.... 1
.... 2 - 4

Variable 6 Self-direction Discussions

G.I. Self Direction (check ✓)
1.... No drive. Guide has to dominate.
2.... Group has some self propulsion, but needs considerable push.
3.... Domination from a strong single member or clique.
4.... With a little prodding, group initiates and does activities.
5.... Group spontaneously initiates and does activities.

Variable 7 Self-direction Forest Activities

F.I. Self Direction (check ✓)
1.... No drive. Guide has to dominate.
2.... Group has some self propulsion, but needs considerable push.

3.... Domination from a strong single member or clique.
4.... With a little prodding, group initiates and does activities.
5.... Group spontaneously initiates and does activities.

Variable 8 Leadership Discussions

G.I. Distribution of Leadership (check ✓)
1.... Guide does all leading.
2.... A few members always take leader roles. Rest are passive.
3.... Some members take leader roles. Rest are passive.
4.... Many members take leadership but one or two continually following.
5.... Leadership is shared by all members of group.

Variable 9 Leadership Forest Activities

F.I. Distribution of Leadership (check ✓)
1.... Guide does all leading.
2.... A few members always take leader roles. Rest are passive.
3.... Some members take leader roles. Rest are passive.
4.... Many members take leadership but one or two continually following.
5.... Leadership is shared by all members of group.

Variable 10 Variety of Discussions

G.I. Variety of Activities (check ✓)
1.... Little variety in activities, stick to the same things.
2.... Some variety in activities.
3.... Considerable variety in activities. Try out new activities.
4.... Great variety in activities. Continually trying out new ones.

Variable 11 Discussion Origins

G.I. Activity Origins (check ✓)
1.... Activities depend on the requests of the guide. Guide has to start and direct activities.
2.... Group looks to guide for suggestions and ideas for activities. Group is interested but waits for guide to indicate and sometimes initiate activities.
3.... By encouragement and making suggestions guide can stimulate group to choose and initiate its activities.
4.... Group initiates and does activities on its own. Guide just offers occasional comments and information.

Variable 12 Forest Activity Origins

F.I. Activity Origins (check ✓)
1.... Activities depend on the requests of the guide. Guide has to start and direct activities.
2.... Group looks to guide for suggestions and ideas for activities. Group is interested but waits for guide to indicate and sometimes initiate activities.
3.... By encouragement and making suggestions guide can stimulate group to choose and initiate its activities.
4.... Group initiates and does activities on its own. Guide just offers occasional comments and information.

Variable 13 Depth of Discussions

G.I. Depth of Activities (check ✓)
1.... Children are just spectators, don't get involved at all.
2.... Little depth in activities, just scratching the surface, just going through the motions.
3.... Some depth but children not increasing their skills.
4.... Considerable depth in activities. Children able to utilize some of their ability.
5.... Great depth in activities. Children find each a challenge to develop their abilities. Totally immersed in activities.

Variable 14 Depth Forest Activities

F.I. Depth of Activities (check ✓)
1.... Children are just spectators, don't get involved at all.
2.... Little depth in activities, just scratching the surface, just going through the motions.
3.... Some depth but children not increasing their skills.
4.... Considerable depth in activities. Children able to utilize some of their ability.
5.... Great depth in activities. Children find each a challenge to develop their abilities. Totally immersed in activities.

Variable 15 Fight and Attention Getting

G.I. Adjustment Type (% based on occurrence)
a) .... fight
b) .... attention getting

Variable 16 Distribution of Discussions

Distribution of Discussion Interaction (check ✓)
1.... Everyone tries to get out of questioning and answering.
2.... Questioning and answering done by a few children.
3.... Many children do some questioning and answering.
4.... Questioning and answering are done by nearly all children.

Variable 17 Energy Hyperactive

Group Energy (number of children)
a) .... hyperactive and extremely noisy, excessive screaming, running and scattering. Communications are yelled and repeated with limited success.

Variable 18 Energy Withdrawn

Group Energy (number of children)
d) .... withdrawn, very quiet, very passive - negligible response to communications and forest.

Variable 19 Antagonistic to Guide

Guide - Child Rapport (number of children)
a) .... antagonistic or resentful

Variable 20 Indifferent to Guide

Guide - Child Rapport (number of children)
b) .... indifferent toward guide, friendship neither sought nor rejected, non-communicative

Variable 21 Forest to Guide Interaction

Group Interaction Direction (% based on occurrence)
a) .... forest then guide

Variable 22 Indifferent to Forest Experience

Forest Experience Outlook (number of children)
b) .... indifferent, blasé, little involvement with forest

Variable 23 Interested in Forest Experience

Forest Experience Outlook (number of children)
c) .... interested, happy, enthusiastic, willing to do things in the forest and learn about it

Variable 24 Ecstatic about Trip

Forest Experience Outlook (number of children)
d) .... ecstatic, excited, may express strong favourable feelings about forest, not particularly interested in learning about forest

Variable 25 Describing Observations

Describing Observations and Information (check ✓)
1.... Use very general nouns, verbs and adjectives to describe.
2.... Use simple specific words to describe things and parts of things.

3.... Use proper nouns and some complicated words. Words have narrow meanings and are well modified.
4.... Can use scientific words that are not of everyday language. They may require a definition and be fairly abstract.

Variable 26 Group Use of Concepts

Group Use of Concepts (check ✓)
1.... Group may repeat information right after it is given or imitate an action but does not pursue concepts much further than that.
2.... Group recognizes, remembers and recalls concepts previously mentioned.
3.... Group not only remembers concepts but compares them and reinterprets them in the light of new information and experiences.
4.... Group is primarily interested in concepts to explain, predict, justify observations and abstractions.
5.... Group discovers concepts on its own. Creates worthwhile explanations and analysis of situations.

Variable 27 Recognition of Problems

Recognition of Problems (check ✓)
1.... Group rarely notices any sort of problem.
2.... Group identifies only superficial problems.
3.... Group notices obvious problems, overlooks subtle ones.
4.... Group has a questioning attitude and is intelligently curious.
5.... Group has penetrating insight and consistently identifies problems.

Variable 28 Concern for Problems

Concern for Problems (check ✓)
1.... Group has no capacity for a sustained attack on most problems.
2.... Group does not discuss problems clearly; wanders, introduces irrelevant ideas.
3.... Group will discuss problems and come up with a solution for the typical problems.
4.... Group is persevering and is reluctant to leave a problem without completing it.
5.... Group is unusually persistent in all problem solving efforts.

Variable 29 Flexibility with Problems

Flexibility with Problems (check ✓)
1.... Group abandons problem after one attempt to solve.
2.... Group relies on steady plodding, shows little ingenuity.

3.... Group has only occasional trouble suggesting new, effective ways to attack problems.
4.... Group shows some resourcefulness.
5.... Group is highly imaginative; displays unusual ingenuity.

Variable 30 Field Trip Content (see following page)

Variable 31 Protection Norm Unreasonable

P Acceptance of Norms (number of children)
d).... Group pressure as well as reasons are required.
e).... Rules have to be laid down.
f).... Rewards and/or punishment (or threat of) have to be used.
g).... All the above fail.

Variable 32 Respect Norm Unreasonable

R Acceptance of Norms (number of children)
d).... Group pressure as well as reasons are required.
e).... Rules have to be laid down.
f).... Rewards and/or punishment (or threat of) have to be used.
g).... All the above fail.

Variable 33 Safety Norm Reasonable

S Acceptance of Norms (number of children)
a).... Reasons are warm heartedly accepted and supported.
b).... Reasons are accepted.

Variable 34 Problem Solving Discussions

Guide Interaction Content (% based on occurrence)
b).... problem solving

Variable 35 Discussions About Feelings

Guide Interaction Content (% based on occurrence)
a).... feelings

Variable 36 Games

Social Interaction Content (% based on occurrence)
a).... athletic games
c).... social games, role playing

Variable 37 Conversations

Social Interaction Content (% based on occurrence)
b).... conversations

Variable 30 Field Trip Content

Information Content (check ✓)

Object	Mentioned	Discussed	Observed	Observed Commented	Observed Discussed	Observed Discussed in depth or repeatedly
Birds	....	....	....	....	....	....
Bird Signs	....	....	....	....	....	....
Forest	....	....	....	....	....	....
Insects	....	....	....	....	....	....
Insect Signs	....	....	....	....	....	....
Mammals	....	....	....	....	....	....
Mammal Signs	....	....	....	....	....	....
Microorganisms	....	....	....	....	....	....
People	....	....	....	....	....	....
People Signs	....	....	....	....	....	....
Plants	....	....	....	....	....	....
Pond	....	....	....	....	....	....
Reptiles	....	....	....	....	....	....
Reptile Signs	....	....	....	....	....	....
Soil	....	....	....	....	....	....
Trees	....	....	....	....	....	....
Weather	....	....	....	....	....	....
	(1)	(2)	(3)	(4)	(5)	(6)

(Sum checks for score)

Variable 38 Small Group Guide Interaction

G.I. Interaction Sub Grouping (% based on occurrence)
a).... 1
b).... 2 - 4

Variable 39 Variety Forest Activities

Variety of Activities (check ✓)
..... Little variety in activities, stick to the same things.
..... Some variety in activities.
..... Considerable variety in activities. Try out new activities.
..... Great variety in activities. Continually trying out new ones.

Variable 40 Forest Fight and Attention Getting

F.I. Adjustment Type (% based on occurrence)
a).... fight
c).... attention getting

Variable 41 Flight Guide

G.I. Adjustment Type (% based on occurrence)
b).... flight

Variable 42 Flight Forest

F.I. Adjustment Type (% based on occurrence)
b).... flight

Variable 43 Amount of Forest Adjustment

F.I. Adjustment Amount (check ✓)
1.... No adjustment or very little.
2....
3.... Some adjustment but does not hinder activities.
4....
5.... A lot of adjustment that does hinder activities.

Variable 44 Amount of Guide Adjustment

G.I. Adjustment Amount (check ✓)
1.... No adjustment or very little.
2....
3.... Some adjustment but does not hinder activities.
4....
5.... A lot of adjustment that does hinder activities.

Variable 45 Group Climate

Group Climate (check ✓)
1.... Climate inhibits good fun, behavior and expression of desires, fears, and opinions.
2.... Children express their individual needs and desires but nothing about the group's interests.
3.... Children freely express their needs and desires but joke, argue and complain about the rest of the group's interests to the detriment of the group.
4.... Children feel free to express their feelings and desires. They accept the rest of the group's interests and the importance of what the group as a whole wants.

Variable 46 Task Functions

Guide Functions (% based on occurrence)
a)... Task

Variable 47 Group Functions

Guide Functions (% based on occurrence)
b)... Group

Variable 48 Individual Functions

Guide Functions (% based on occurrence)
c)... Individual

Variable 49 Relate to Family Life

Relating Observations and Information (% based on occurrence)
a)... Relate to the structure and functioning of the human body, family or home.

Variable 50 Relate to City Life

Relating Observations and Information (% based on occurrence)
b)... Relate to general knowledge gained from everyday experiences.

Variable 51 Relate to Outdoor Experiences

Relating Observations and Information (% based on occurrence)
c)... Relate to previous outdoor experience with family or friends.

Variable 52 Relate to Formal Education

Relating Observations and Information (% based on occurrence)
d)... Relate to previous knowledge from books or classroom.

Variable 53 Active

Group Energy (number of children)
b).... active, noisy, quick to disperse and interact with the forest, normally will listen to communications.

Variable 54 Quiet or Orderly

Group Energy (number of children)
c).... respond quietly and orderly to communications and the forest.

Variable 55 Friendly to Guide

Guide - Child Rapport (number of children)
c).... friendly and interested. Attentive to guide's suggestions and behavior.

Variable 56 Intimate with Guide

Guide - Child Rapport (number of children)
d).... intimate relations: openess and sharing, strong rapport.

Variable 57 Names

Information Classification (% based on occurrence)
a).... Names or descriptions of forest objects or their parts.

Variable 58 Processes

Information Classification (% based on occurrence)
b).... processes or actions which forest objects do or which happen to them.

Variable 59 Abstractions

Information Classification (% based on occurrence)
c).... Abstractions giving explanations, reasons or predictions about processes or characteristics.

Variable 60 Use of Facts

Use of Facts (check ✓)
1.... Group accepts as truth whatever is said.
2.... Group rarely presents or demands any sort of supporting evidence.
3.... Group generally seeks the fact or the situation.
4.... Group regularly seeks evidence and can judge how reliable and pertinent data is.
5.... Group consistently bases conclusions on all facts properly evaluated.

Variable 61 Cooperation

Group Cooperative Judgment Level (check ✓)

1.... Group jumps to conclusion or lets guide do most of the thinking.
2.... Some cooperative thinking in considering alternate solutions but group gets tangled up in pet ideas or prejudices of a few.
3.... Usually makes reasonable choice among obvious alternatives.
4.... Group critically examines most possibilities but not yet an orderly process.
5.... Group reaches final solutions after careful analysis of all data and everyone's ideas. Good pooling of ideas and orderly thoughts.

Variable 62 Resolving Disagreements

Method of Resolving Disagreements (check ✓)

1.... Group waits for guide to resolve disagreement.
2.... Group follows lead of one of its own leaders.
3.... Strongest sub-group dominates the outcome of the decision.
4.... Compromises are effected by each sub-group giving up something.
5.... Group as a whole arrives at a solution that satisfies all children and that is better than any single suggestion.

Variable 63 Protection Norm Accepted

P Acceptance of Norms (number of children)

..... Reasons are warm heartedly accepted and supported.
..... Reasons are accepted.

Variable 64 Respect Norm Accepted

R Acceptance of Norms (number of children)

..... Reasons are warm heartedly accepted and supported.
..... Reasons are accepted.

Variable 65 Protection Norm Enforced

P Acceptance of Norms (number of children)

..... Reasons have to be repeated before they are accepted.

Variable 66 Respect Norm Enforced

R Acceptance of Norms (number of children)

..... Reasons have to be repeated before they are accepted.

Variable 67 Safety Norm Enforced

S Acceptance of Norms (number of children)
..... Reasons have to be repeated before they are accepted.

Variable 68 Safety Norm Unreasonable

S Acceptance of Norms (number of children)
g)... Group pressure as well as reasons are required.
e)... Rules have to be laid down.
f)... Rewards and/or punishment (or threat of) have to be used.
g)... All the above fail.

Variable 69 Unhappy With the Forest Experience

Forest - Experience Outlook (number of children)
a)... antagonistic, unhappy, upset, or turned off.

A P P E N D I X 9

DEFINITIONS

Guide Interaction (discussion) - feelings (I love red flowers)
problem solving (What is a muskrat?)

Forest Interaction - passive observation (scenic walk, conversations about nature)
active observation (exploring, turning over rocks for bugs)
expressive physical activity (climbing trees, running)
role playing (wolf howling, going hunting)

Social Interaction - athletic games (tag, rock throwing competition)
private conversations (not connected with out of doors)
social games, role playing (sick jokes, war games, boy-girl chases)

Expressive physical activity - This is done for its own sake and is dependent on the mood of the child. The stimulus for the activity comes directly from the forest.

Role playing (forest interaction) - The stimulus comes directly from the forest environment.

Athletic games - Use of physical skills is primary component. Involves elements of competition. Receives its stimulus from the group.

Social games, role playing (Social Interaction) - Stimulus for these activities comes from the group and not directly from the forest environment. Interaction with forest components is negligible.

Leader - a child who really helps the group initiate and accomplish activities.

Adjustment - the use of ways of overcoming, avoiding or circumventing threatening situations. Threatening situations can be a response to group created anxiety or anxiety related to an activity.

Fight - aggressive behavior on the source of the threat in an attempt to reduce or control it (temper tantrums, actual fighting, loss of temper, over-participation physically or verbally).

Flight - withdrawal from source of threat (shy, consistent under-participation, very obedient, submissive).

Attention getting - reduces the tension caused by the threat (crying, showing off, boasting, teasing, complaining, swearing, telling dirty jokes, being disobedient, lying, stealing).

Climate - the emotional atmosphere of the tour. The extent to which the children express their feelings and appreciate the group's limits and needs.

Task, Group, Individual - all guide actions can be classified into these three categories.

Task - actions which help the group discuss things and to do activities

- defining problems
- giving information
- asking for information
- testing solutions
- explaining or demonstrating activities

Group - actions which help the group maintain itself

- keeping the group on course
- keeping the group within seeing or hearing distance
- keeping things running smoothly by reconciling disputes
- doing things which are receptive, warm, and encouraging to support and promote the group's activities
- coordinating and organizing the children's input to facilitate the activities and discussions

Individual - dealing with actions which do not help the group in any way

- dealing with children who complain, resist or argue beyond reason
- dealing with irrelevant comments and digressions
- dealing with individual adjustment
- dealing with social interactions

G.F. - a situation which the guide initiated by bringing something in the forest to the children's attention

F.G. - a situation in which the children are already interacting with the forest before the guide enters into the interaction

A P P E N D I X 10

SOCIO-ECONOMIC VARIABLES

1) Population Density (people/acre)
2) % French Speaking
3) % English Speaking
4) % Bilingual
5) % Other Language
6) % Canadian Born
7) % Elementary Education
8) % High School Education
9) % University Education
10) Occupations (% managerial, professional and technical)
11) % Unemployment
12) % Families with Six or More Children
13) % Families Both Parents Working
14) Average Persons per Household
15) % One Parent Families
16) % Family Income Less Than $4,000
17) % Family Income $4,000 to $7,000
18) % Family Income More Than $7,000
19) % Dwellings in Apartments
20) % Dwellings Before 1920
21) % Dwellings 1946-1961
22) Average Bedrooms/Dwellings

23) Crowding (% more than 1.0 person per room)

24) % Dwellings with Major Repairs

25) % Dwellings Equal to or Less than $7,000

26) % Dwellings Equal to or Greater than $18,000

27) % More than One Mortgage

28) % Gross Rent Equal to or Less Than $59/month

Notes on Socio-Economic Variables

Variable

7), 8), 9) Those not attending school.

11) The labour force includes all persons 15 years of age and older who had a job of any kind, or who were actively looking for work prior to enumeration.

12), 13) Family is a husband and wife with or without children or a parent with one or more children. Children refers to those who are under twenty-four years of age, living at home, and who have never married. Adopted children and stepchildren are also counted as one's own children.

14) Household is one or more persons occupying a single dwelling. Every person is a member of some household. The number of households equals the number of occupied dwellings.

16), 17), 18) Income is based on figures for the twelve month period ending May 31, 1961. Family income is the total yearly income of each member (15 years of age or over) of a family.

19), 20), 21) 24), 25), 26) Dwelling is a structurally separate set of living quarters with a private entrance that does not pass through anyone else's living quarters.

22) Bedroom is any room designed and used primarily for sleeping purposes (includes "spare" bedrooms).

24) Major repairs means dwelling is in a seriously neglected condition and has one or more structural deficiencies.

25), 26) The value of a single detached, owner-occupied, non-farm dwelling based on the amount expected if dwelling was sold to a willing buyer.

27) A mortgage is all debts on a single detached, owner-occupied, non-farm dwelling including mortgages, agreements for sale, or any other legal instrument constituting a mortgage.

28) Gross rent is for non-farm dwellings only, and is for the month of May 1961, and includes any additional amount paid for services such as water, electricity, gas or fuel in the same period.

A P P E N D I X 11

NARRATIVE FIELD TRIP REPORT FORM

PREPARATION AND BACKGROUND OF CHILDREN

CLOTHES		KNOWLEDGE		OUTLOOK	
Type	%	Type	%	Type	%

CHILDREN ON THE TOUR

	Very Keen	Mod.Keen	Indifferent	Mod. Dislike	Strongly Dislike
Beginning					
Middle					
End					

SUBJECT MATTER

ENVIRONMENT

Forest		Trail		Other	
Type	Interest	Type	Interest	Type	Interest

CHILD BEHAVIOR DESCRIPTION	% group	% Time

	CONTENT	APPROACH	RATING	REASONS
Most Successful Talk				
Least Successful Talk				

TEACHER

Knowledge	Interest	Coping	Outlook	Assessment

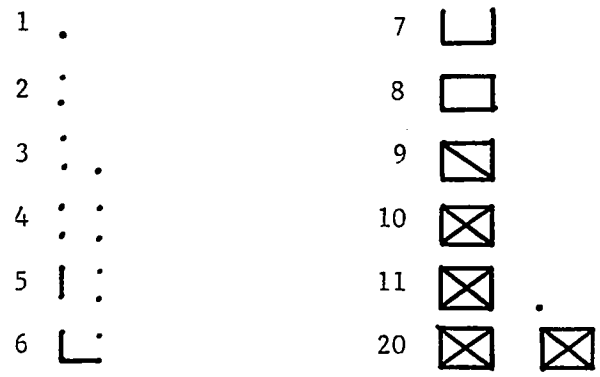
QUESTIONS AND CONVERSATIONS

A P P E N D I X 12

Form A

				TOTAL		G			F.T.	
	G	F	S		G	F	S	P	R	S
1				11						
2				12						
3				13						
4				14						
5				15						
6				16						
7				17						
8				18						
9				19						
10				20						

Dot Line Notation



A P P E N D I X 13

INSTRUCTIONS FOR TIMER AND POUCH

Timer

The minute minder used in this study was model 24828 B 71 and is manufactured by Lux Time (Canada) Ltd., Oakville, Ontario.

The minute minders were modified so that they could be consistently set for 5½ minutes easily with one hand. The timers were adapted by first prying off the dial face with a knife. Then the half of the dial containing the numbers 31 to 59 was cut off with a heated knife and discarded. The dial was cut so that the raised indicator arrow was left on the half containing the numbers 0 to 30. This half of the dial was then replaced onto the timer. A piece of plastic 3/4" x 1/4" x 1/4" was glued to the front of the timer so that when the dial was turned to 5½ minutes it rested against this piece of plastic.

Pouch

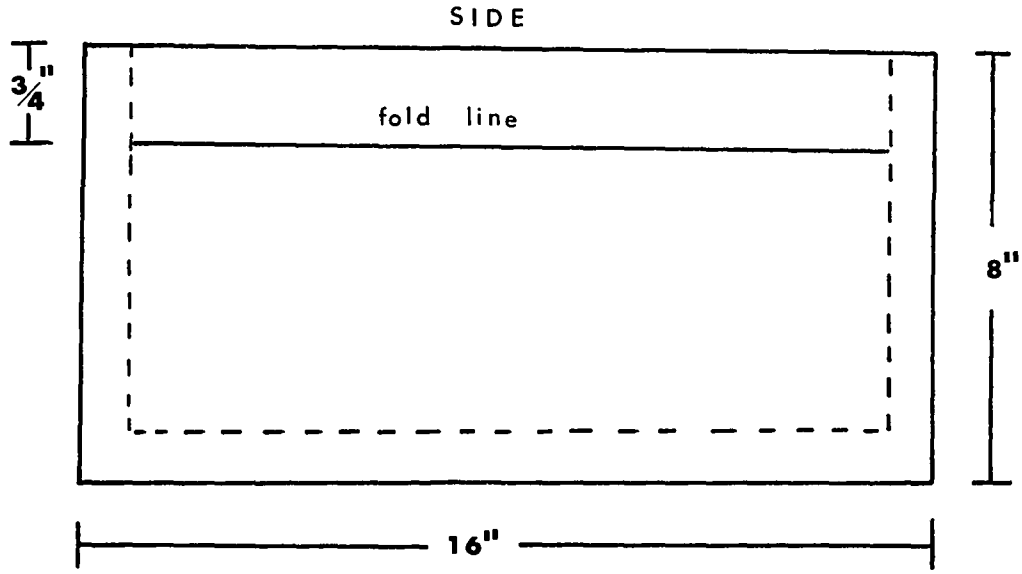
1) Use any light waterproof material.
2) Sew side seam. Then stitch base to tube.
3) Sew sides together with a 5/8" seam. Fit rest of base and complete stitching.
4) Turn top down 3/4". Place two elastic bands inside fold and stitch lower edge, easing elastic in. Be careful not to get elastic caught in stitching.

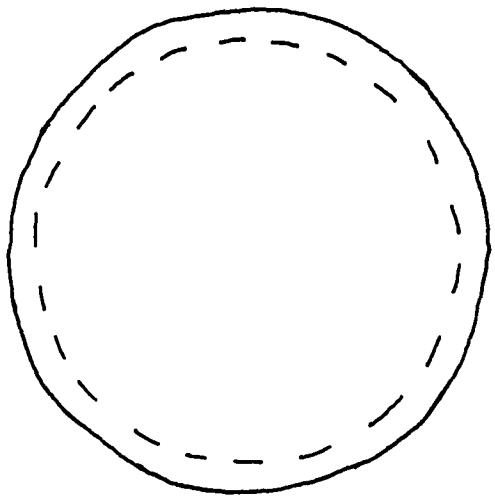
5) Hem flap edges and attach to back of pouch (centering on the seam) and sew $\frac{1}{5}$" from the top.

6) Make 2" long loops. Then attach to back of pouch below flap and even with edges.

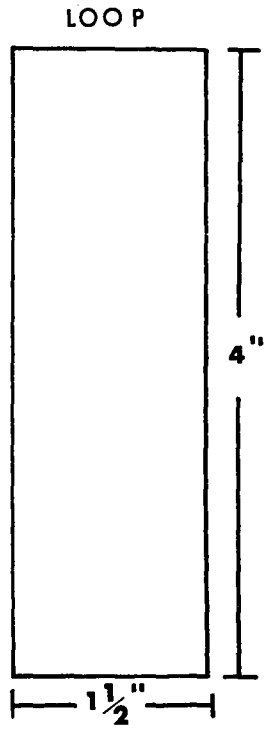
7) Cardboard base can be cut out and placed inside pouch if desired.

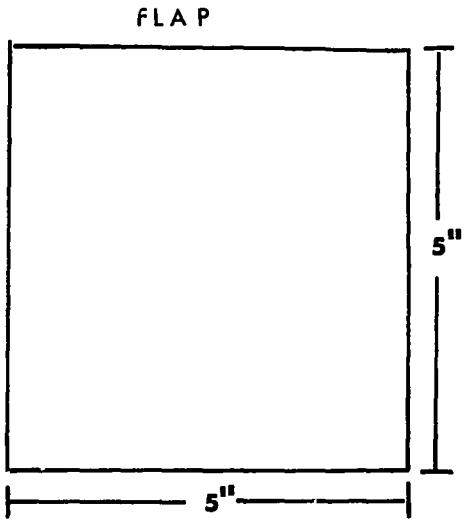
PATTERN FOR POUCH





DIAMETER 5 3/4"





A P P E N D I X 14

GUIDES OBSERVING, GUIDES AND FIELD TRIPS OBSERVED

Field Trip	Observer	Guide	Field Trip	Observer	Guide
113	7	8	251	2	1
124	6	10	253	5	4
130	10	6	254	9	8
132	8	9	256	1	2
133	5	1	263	8	10
139	6	9	269	10	7
142	2	3	275	3	5
187	7	10	278	7	9
195	10	9	285	7	10
197	4	2	296	4	5
201	8	7	297	8	6
204	3	1	298	5	3
208	10	6	306	2	5
209	9	7	313	6	7
215	6	7	323	8	7
217	8	10	324	9	10
219	1	3	330	7	8
222	7	6	332	6	10
228	9	10	338	8	6
232	2	4	339	9	7
236	5	3	343	3	4
239	10	7	347	6	9
243	3	2	349	4	1
244	7	6	355	10	8
248	6	8	368	5	2

	Guide									
	1	2	3	4	5	6	7	8	9	10
Number of Times Observing	2	4	4	3	5	7	7	7	5	6
Number of Times Observed	4	4	4	3	3	6	8	5	5	8

A P P E N D I X 15

CORRELATION MATRIX

VARIABLE	1	2	3	4	5	6	7	8	9	10
1	0.75									
2	-0.44	0.73								
3	-0.42	-0.45	0.75							
4	0.09	-0.12	0.13	0.37						
5	-0.04	0.10	-0.03	0.25	0.24					
6	-0.34	0.39	-0.07	0.07	0.10	0.72				
7	-0.59	0.29	0.26	0.00	0.08	0.56	0.76			
8	-0.35	0.48	-0.14	-0.03	0.11	0.71	0.49	0.72		
9	-0.60	0.33	0.21	-0.17	0.03	0.50	0.72	0.59	0.71	
10	-0.22	0.39	-0.22	0.00	0.10	0.61	0.41	0.61	0.42	0.65
11	-0.36	0.40	-0.07	0.10	0.14	0.72	0.53	0.68	0.48	0.64
12	-0.60	0.25	0.33	0.05	0.06	0.51	0.77	0.48	0.65	0.34
13	-0.18	0.44	-0.27	-0.05	0.04	0.64	0.41	0.60	0.42	0.70
14	-0.35	0.31	0.06	0.02	0.05	0.57	0.57	0.51	0.51	0.49
15	-0.05	-0.17	0.25	0.07	0.06	0.03	0.05	-0.02	0.05	-0.07
16	-0.25	0.46	-0.25	-0.14	0.02	0.61	0.45	0.62	0.46	0.60
17	-0.25	-0.28	0.55	0.07	0.03	-0.19	0.16	-0.22	0.07	-0.24
18	0.31	-0.23	-0.11	0.00	-0.03	-0.27	-0.40	-0.26	-0.34	-0.26
19	-0.03	-0.19	0.21	0.00	0.09	-0.07	0.04	-0.13	0.01	-0.13
20	0.16	-0.34	0.16	0.04	-0.06	-0.38	-0.22	-0.39	-0.28	-0.41
21	-0.41	0.35	0.05	0.06	0.14	0.64	0.58	0.57	0.48	0.50
22	0.33	-0.33	-0.03	0.02	-0.02	-0.39	-0.43	-0.36	-0.39	-0.32
23	-0.04	0.31	-0.26	-0.05	-0.06	0.21	0.08	0.26	0.12	0.23
24	-0.20	-0.06	0.27	0.01	0.06	0.11	0.27	0.03	0.21	0.04
25	-0.17	0.33	-0.20	-0.09	0.04	0.46	0.35	0.50	0.39	0.52
26	-0.21	0.37	-0.23	-0.05	0.04	0.54	0.41	0.56	0.43	0.54
27	-0.23	0.46	-0.26	0.05	0.11	0.62	0.46	0.62	0.44	0.64
28	-0.17	0.42	-0.28	-0.02	0.03	0.56	0.38	0.57	0.38	0.57
29	-0.18	0.41	-0.25	-0.04	0.05	0.57	0.40	0.54	0.42	0.60
30	-0.14	0.32	-0.19	-0.01	0.10	0.35	0.24	0.40	0.28	0.41
31	-0.13	-0.15	0.29	0.06	0.04	-0.09	0.08	-0.13	0.02	-0.12
32	-0.14	-0.17	0.33	-0.00	0.05	-0.06	0.13	-0.12	0.08	-0.14
33	0.14	0.17	-0.35	-0.13	-0.14	0.05	-0.09	0.11	-0.00	0.17
34	0.03	0.29	-0.30	-0.16	-0.05	0.06	-0.13	0.12	-0.07	0.07
35	-0.01	-0.22	0.24	0.17	0.10	-0.05	0.09	-0.11	0.04	-0.07
36	0.08	-0.04	-0.03	0.11	-0.01	0.01	0.01	-0.00	-0.08	-0.01
37	-0.17	-0.11	0.27	0.09	0.05	-0.04	0.17	-0.07	0.06	-0.08
38	-0.14	-0.06	0.22	-0.01	0.06	-0.03	0.06	-0.04	0.04	-0.01
39	-0.15	-0.13	0.27	0.12	0.07	0.00	0.11	-0.13	0.04	-0.04
40	-0.03	-0.03	0.03	-0.19	-0.13	-0.11	0.02	-0.10	0.05	-0.08
41	0.18	-0.08	-0.11	-0.11	-0.12	-0.17	-0.20	-0.10	-0.11	-0.17
42	-0.17	0.09	0.10	0.17	0.16	0.20	0.19	0.13	0.09	0.18

VARIABLE	1	2	3	4	5	6	7	8	9	10
43	0.04	-0.07	-0.00	-0.16	-0.14	-0.13	-0.05	-0.10	-0.02	-0.07
44	-0.04	-0.02	0.02	-0.11	-0.08	-0.06	0.04	-0.06	0.08	-0.07
45	0.15	-0.02	-0.10	-0.02	-0.05	-0.07	-0.16	-0.02	-0.14	-0.05
46	0.08	-0.05	-0.08	-0.24	-0.19	-0.18	-0.10	-0.11	-0.02	-0.16
47	-0.08	0.05	0.05	0.20	0.16	0.19	0.10	0.13	0.02	0.18
48	-0.10	0.04	0.11	0.27	0.21	0.17	0.11	0.10	0.06	0.16
49	-0.07	0.04	0.08	0.32	0.24	0.16	0.07	0.09	-0.00	0.14
50	0.01	-0.04	0.01	-0.24	-0.16	-0.19	-0.03	-0.11	0.04	-0.17
51	0.07	-0.06	0.01	-0.02	0.01	-0.13	-0.10	-0.06	-0.06	-0.13
52	-0.12	0.04	0.03	-0.19	-0.10	0.02	0.14	0.01	0.14	0.02
53	0.07	-0.02	-0.04	0.11	0.06	-0.04	-0.10	-0.01	-0.08	-0.05
54	-0.01	-0.07	0.09	-0.15	-0.10	-0.09	0.01	-0.09	0.04	-0.06
55	0.02	-0.07	0.02	-0.26	-0.19	-0.21	-0.05	-0.15	0.00	-0.19
56	0.13	-0.04	-0.14	-0.17	-0.14	-0.13	-0.14	-0.05	-0.10	-0.13
57	-0.03	-0.02	0.07	0.20	0.12	0.03	0.02	0.02	-0.07	0.01
58	-0.02	-0.03	0.01	-0.23	-0.18	-0.08	0.00	-0.09	0.04	-0.07
59	-0.03	-0.07	0.13	-0.12	-0.05	-0.16	-0.01	-0.15	-0.00	-0.15
60	0.03	0.04	-0.09	0.17	0.10	0.13	-0.01	0.12	-0.02	0.10
61	-0.00	-0.00	0.06	0.29	0.21	0.06	-0.01	0.05	-0.05	0.03
62	0.06	-0.03	-0.08	-0.22	-0.18	-0.13	-0.09	-0.07	-0.00	-0.12
63	0.02	-0.11	0.10	-0.07	-0.03	-0.20	-0.06	-0.17	-0.06	-0.22
64	0.00	-0.00	0.00	-0.17	-0.12	-0.08	-0.01	-0.04	0.06	-0.07
65	-0.11	0.02	0.13	0.23	0.18	0.11	0.10	0.03	0.02	0.10
66	0.05	0.06	-0.08	0.21	0.17	0.12	-0.02	0.11	-0.07	0.08
67	0.07	-0.03	-0.02	-0.17	-0.09	-0.16	-0.07	-0.07	-0.02	-0.13

VARIABLE	11	12	13	14	15	16	17	18	19	20
11	0.73									
12	0.56	0.73								
13	0.60	0.34	0.75							
14	0.54	0.53	0.59	0.65						
15	0.03	0.07	-0.07	0.02	0.20					
16	0.58	0.35	0.70	0.51	-0.07	0.69				
17	-0.15	0.22	-0.33	-0.06	0.19	-0.32	0.60			
18	-0.23	-0.32	-0.29	-0.35	-0.00	-0.26	-0.13	0.42		
19	-0.07	0.08	-0.10	-0.09	0.11	-0.15	0.37	-0.04	0.55	
20	-0.39	-0.17	-0.49	-0.29	0.04	-0.50	0.35	0.27	0.08	0.55
21	0.65	0.58	0.47	0.50	0.03	0.49	-0.01	-0.27	-0.03	-0.23
22	-0.39	-0.40	-0.41	-0.53	0.08	-0.42	0.06	0.48	0.08	0.49
23	0.22	0.07	0.31	0.09	-0.13	0.29	-0.38	-0.26	-0.23	-0.43
24	0.09	0.24	0.03	0.35	0.05	0.05	0.32	0.10	0.12	0.05
25	0.47	0.31	0.59	0.44	-0.10	0.53	-0.20	-0.19	-0.02	-0.31
26	0.57	0.35	0.62	0.51	-0.10	0.62	-0.26	-0.23	-0.11	-0.38
27	0.65	0.43	0.67	0.57	-0.12	0.66	-0.25	-0.28	-0.14	-0.42
28	0.56	0.32	0.67	0.50	-0.13	0.63	-0.31	-0.25	-0.16	-0.43
29	0.57	0.33	0.68	0.52	-0.06	0.67	-0.27	-0.25	-0.15	-0.41
30	0.35	0.17	0.48	0.35	-0.07	0.50	-0.26	-0.12	-0.13	-0.41
31	-0.07	0.09	-0.14	-0.10	0.12	-0.15	0.40	-0.06	0.56	0.11

VARIABLE	11	12	13	14	15	16	17	18	19	20
32	-0.03	0.14	-0.14	-0.09	0.11	-0.15	0.46	-0.07	0.61	0.17
33	0.05	-0.14	0.21	0.08	-0.13	0.23	-0.44	0.05	-0.17	-0.20
34	0.09	-0.08	0.08	-0.05	-0.14	0.17	-0.31	0.04	-0.12	-0.30
35	-0.06	0.04	-0.07	0.05	0.15	-0.18	0.23	-0.02	0.12	0.26
36	-0.06	-0.01	-0.03	-0.14	0.03	0.01	0.10	-0.03	0.03	0.06
37	0.01	0.18	-0.13	0.02	0.13	-0.05	0.28	-0.02	0.13	0.09
38	0.01	0.10	-0.07	-0.02	0.10	-0.02	0.25	-0.00	0.33	0.07
39	0.01	0.14	-0.14	-0.07	0.17	-0.07	0.28	-0.05	0.12	0.08
40	-0.13	-0.06	-0.08	-0.10	0.02	-0.02	0.04	0.09	0.01	0.01
41	-0.16	-0.21	-0.08	-0.14	-0.03	-0.08	-0.15	0.14	-0.05	0.00
42	0.19	0.22	0.10	0.13	0.04	0.08	0.13	-0.13	0.06	0.00
43	-0.13	-0.10	-0.05	-0.02	-0.04	-0.05	-0.02	0.04	-0.04	-0.01
44	-0.09	0.00	-0.08	-0.07	0.02	-0.01	0.05	-0.02	0.01	0.04
45	-0.04	-0.16	0.02	-0.05	-0.05	-0.04	-0.14	0.12	-0.06	-0.06
46	-0.16	-0.12	-0.10	-0.18	-0.01	-0.04	-0.08	0.11	0.00	0.03
47	0.16	0.10	0.13	0.18	-0.02	0.08	0.06	-0.12	-0.02	-0.05
48	0.15	0.14	0.07	0.17	0.06	0.01	0.12	-0.12	0.04	-0.01
49	0.14	0.12	0.08	0.17	0.03	0.00	0.09	- 0.12	0.03	-0.01
50	-0.15	-0.06	-0.13	-0.18	0.05	-0.05	0.04	0.05	0.03	0.02
51	-0.08	-0.07	-0.07	-0.09	0.03	-0.08	-0.02	0.04	0.07	0.07
52	0.02	0.11	-0.03	-0.03	-0.00	0.07	0.08	-0.04	-0.01	0.03
53	-0.01	-0.06	-0.01	-0.02	0.00	-0.05	-0.07	-0.01	0.03	0.04
54	-0.10	-0.05	-0.08	-0.05	0.03	-0.07	0.07	0.07	-0.01	0.02
55	-0.19	-0.09	-0.15	-0.18	0.02	-0.07	0.02	0.10	0.02	0.05
56	-0.11	-0.16	-0.04	-0.13	-0.08	0.01	-0.14	0.07	-0.08	0.01
57	0.02	0.01	0.02	0.08	-0.01	-0.02	0.08	-0.10	-0.01	0.04
58	-0.09	-0.05	-0.06	-0.06	-0.05	-0.02	0.01	0.08	-0.08	0.01
59	-0.14	-0.06	-0.15	-0.15	0.08	-0.14	0.12	0.10	0.06	0.10
60	0.13	0.07	0.08	0.11	-0.05	0.08	-0.08	-0.11	-0.02	-0.05
61	0.07	0.04	0.02	0.06	0.07	-0.06	0.06	-0.09	0.07	0.06
62	-0.10	-0.09	-0.07	-0.13	-0.02	-0.01	-0.08	0.08	-0.01	0.01
63	-0.16	0.07	-0.19	-0.15	0.05	-0.13	0.08	0.11	0.06	0.13
64	-0.08	-0.03	-0.02	-0.09	0.06	-0.02	-0.05	0.08	0.02	-0.02
65	0.10	0.12	0.02	0.16	0.02	-0.03	0.14	-0.08	0.02	0.02
66	0.10	0.01	0.08	0.04	0.00	0.06	-0.09	-0.03	0.02	-0.01
67	-0.10	-0.07	-0.11	-0.18	0.05	-0.04	-0.02	0.11	0.08	0.00

VARIABLE	21	22	23	24	25	26	27	28	29	30
21	0.63									
22	-0.36	0.93								
23	0.12	-0.49	0.96							
24	0.15	-0.25	-0.68	0.95						
25	0.37	-0.26	0.19	0.04	0.68					
26	0.43	-0.33	0.24	0.04	0.72	0.74				
27	0.50	-0.42	0.30	0.03	0.67	0.78	0.81			
28	0.42	-0.37	0.33	-0.02	0.66	0.76	0.80	0.79		
29	0.43	-0.35	0.28	0.02	0.69	0.76	0.78	0.83	0.79	
30	0.24	-0.29	0.21	0.03	0.50	0.48	0.52	0.48	0.51	0.46

VARIABLE	21	22	23	24	25	26	27	28	29	30
31	-0.03	0.11	-0.20	0.08	-0.06	-0.11	-0.11	-0.14	-0.13	-0.14
32	-0.00	0.10	-0.23	0.13	-0.07	-0.14	-0.14	-0.16	-0.16	-0.18
33	-0.11	-0.04	0.21	-0.15	0.24	0.24	0.26	0.27	0.25	0.19
34	-0.01	-0.01	0.21	-0.22	0.06	0.11	0.15	0.17	0.12	0.15
35	-0.02	0.00	-0.14	0.14	-0.04	-0.10	-0.15	-0.18	-0.13	-0.14
36	-0.01	0.13	-0.02	-0.07	-0.08	-0.06	-0.02	0.01	-0.01	-0.03
37	0.07	-0.06	-0.22	0.18	-0.07	-0.05	-0.07	-0.08	-0.09	-0.03
38	0.06	0.01	-0.07	0.03	-0.02	-0.06	-0.02	-0.07	-0.08	-0.02
39	0.11	-0.00	-0.10	0.04	-0.27	-0.18	-0.14	-0.17	-0.15	-0.17
40	-0.16	0.06	0.01	-0.10	0.00	-0.06	-0.13	-0.05	-0.04	0.03
41	-0.24	0.11	0.02	-0.10	-0.09	-0.10	-0.16	-0.11	-0.12	0.01
42	0.27	-0.12	-0.00	0.09	0.11	0.12	0.19	0.13	0.14	-0.01
43	-0.12	0.04	-0.04	0.03	-0.14	-0.11	-0.13	-0.11	-0.11	0.00
44	-0.17	0.07	-0.01	-0.08	0.03	0.01	-0.08	-0.01	-0.02	0.01
45	0.00	0.02	0.04	-0.02	-0.05	-0.05	-0.04	-0.07	-0.06	0.00
46	-0.26	0.13	0.04	-0.15	-0.05	-0.08	-0.16	-0.11	-0.11	-0.01
47	0.27	-0.14	-0.02	0.15	0.05	0.08	0.16	0.12	0.11	0.02
48	0.21	-0.10	-0.05	0.13	0.08	0.10	0.17	0.13	0.13	0.01
49	0.22	-0.11	-0.07	0.16	0.06	0.09	0.16	0.11	0.10	-0.00
50	-0.21	0.14	-0.01	-0.13	-0.03	-0.07	-0.17	-0.08	-0.09	0.02
51	-0.12	0.09	-0.05	-0.02	-0.06	-0.05	-0.06	-0.06	-0.08	-0.03
52	-0.03	-0.01	0.03	-0.05	0.04	0.02	-0.02	0.01	0.02	0.01
53	-0.03	0.04	-0.04	0.02	-0.01	0.01	0.01	-0.01	-0.03	-0.02
54	-0.11	0.05	-0.02	-0.04	-0.06	-0.09	-0.13	-0.06	-0.06	0.00
55	-0.27	0.13	0.00	-0.13	-0.05	-0.12	-0.20	-0.12	-0.13	-0.00
56	-0.17	0.07	0.03	-0.07	-0.13	-0.13	-0.15	-0.12	-0.15	-0.01
57	0.05	-0.04	-0.08	0.13	-0.00	-0.04	0.01	0.02	-0.03	0.01
58	-0.14	0.01	0.01	-0.04	-0.03	-0.08	-0.13	-0.07	-0.08	0.03
59	-0.11	0.10	-0.04	-0.08	-0.08	-0.15	-0.18	-0.13	-0.11	-0.05
60	0.10	-0.08	0.01	0.08	0.05	0.12	0.15	0.10	0.08	0.00
61	0.14	-0.01	-0.08	0.10	-0.04	0.01	0.07	0.03	0.02	-0.06
62	-0.21	0.12	0.03	-0.13	-0.01	-0.03	-0.10	-0.05	-0.07	0.01
63	-0.18	0.07	-0.08	-0.01	-0.11	-0.17	-0.20	-0.16	-0.16	-0.05
64	-0.15	0.05	0.09	-0.14	0.07	0.01	-0.06	-0.00	0.01	0.10
65	0.17	-0.10	-0.09	0.16	0.00	0.02	0.08	0.05	0.03	-0.02
66	0.14	-0.04	0.03	0.02	0.04	0.06	0.12	0.06	0.09	-0.02
67	-0.09	0.13	0.03	-0.13	-0.06	-0.06	-0.09	-0.10	-0.06	-0.04

VARIABLE	31	32	33	34	35	36	37	38	39	40
31	0.59									
32	0.70	0.66								
33	-0.27	-0.33	0.43							
34	-0.11	-0.13	0.18	0.72						
35	0.09	0.07	-0.13	-0.78	0.71					
36	0.04	0.15	-0.07	0.02	-0.17	0.28				
37	0.34	0.26	-0.23	-0.09	0.10	0.04	0.49			
38	0.30	0.34	-0.22	-0.02	0.04	0.16	0.32	0.34		
39	0.23	0.26	-0.44	-0.08	0.08	0.18	0.50	0.39	0.55	
40	0.02	-0.07	-0.02	0.08	-0.06	0.00	0.12	0.05	0.04	0.99

VARIABLE	31	32	33	34	35	36	37	38	39	40
41	-0.01	-0.05	0.07	0.11	-0.08	-0.07	-0.05	-0.05	-0.11	0.16
42	0.02	0.08	-0.06	-0.13	0.11	0.06	0.05	0.05	0.08	-0.31
43	-0.03	-0.10	-0.02	0.06	-0.11	0.01	-0.07	-0.03	0.04	0.23
44	0.03	-0.02	-0.01	0.04	-0.02	-0.04	0.14	0.04	0.04	0.71
45	-0.05	-0.01	0.05	0.06	-0.06	-0.04	-0.17	-0.06	-0.10	-0.45
46	0.05	-0.01	0.07	0.13	-0.08	-0.08	0.01	-0.01	-0.07	0.46
47	-0.05	-0.01	-0.06	-0.10	0.05	0.06	-0.03	-0.00	0.05	-0.47
48	-0.03	0.04	-0.08	-0.15	0.12	0.09	0.04	0.05	0.10	-0.32
49	-0.04	0.04	-0.07	-0.17	0.14	0.07	0.02	0.02	0.06	-0.55
50	0.06	0.00	0.02	0.12	-0.10	-0.05	0.07	0.03	-0.00	0.68
51	0.06	0.07	0.02	0.02	0.01	-0.05	0.01	-0.00	-0.05	-0.21
52	0.03	-0.03	-0.02	0.04	-0.04	0.00	0.11	0.04	0.08	0.57
53	0.03	0.08	0.02	-0.03	0.06	-0.09	0.01	-0.02	-0.07	-0.50
54	-0.01	-0.09	-0.03	0.04	-0.04	0.03	0.05	0.05	0.05	0.78
55	0.06	-0.03	0.04	0.10	-0.08	-0.03	0.06	0.02	-0.03	0.79
56	0.01	-0.05	0.09	0.12	-0.10	-0.06	-0.05	-0.08	-0.11	0.00
57	-0.01	0.01	0.02	-0.14	0.09	0.08	-0.01	-0.05	-0.04	-0.38
58	-0.04	-0.12	0.00	0.09	-0.08	-0.01	0.02	-0.01	0.04	0.72
59	0.06	0.03	-0.08	-0.01	0.00	0.02	0.15	0.10	0.08	0.73
60	-0.02	0.04	0.04	-0.04	0.04	-0.03	-0.10	-0.07	-0.05	-0.81
61	0.03	0.12	-0.06	-0.13	0.13	0.03	0.04	0.04	0.03	-0.67
62	0.03	-0.01	0.09	0.14	-0.10	-0.08	-0.04	-0.05	-0.09	0.27
63	0.07	0.02	-0.05	-0.03	0.03	-0.03	0.17	0.07	0.01	0.47
64	0.02	-0.01	0.06	0.07	-0.05	-0.04	-0.01	0.01	-0.04	0.48
65	-0.05	-0.01	-0.09	-0.14	0.12	0.10	0.04	0.03	0.12	-0.21
66	0.03	0.09	0.01	-0.07	0.08	0.00	0.03	0.00	-0.06	-0.52
67	0.08	0.06	0.03	0.10	-0.09	0.00	-0.03	0.04	-0.04	0.17

VARIABLE	41	42	43	44	45	46	47	48	49	50
41	1.00									
42	-0.95	1.00								
43	0.14	-0.41	1.00							
44	0.11	-0.24	-0.02	1.00						
45	0.50	-0.38	0.12	-0.73	1.00					
46	0.79	-0.80	0.07	0.50	0.11	1.00				
47	-0.75	0.74	0.03	-0.53	-0.05	-0.94	1.00			
48	-0.70	0.73	-0.21	-0.27	-0.25	-0.86	0.67	0.99		
49	-0.68	0.75	-0.28	-0.42	-0.12	-0.91	0.79	0.93	1.00	
50	0.47	-0.57	0.20	0.60	-0.19	0.67	-0.67	-0.57	-0.71	1.00
51	0.68	-0.53	-0.20	-0.10	0.45	0.54	-0.56	-0.39	-0.33	0.30
52	-0.35	0.17	0.15	0.66	-0.77	0.11	-0.04	-0.18	-0.30	0.39
53	0.46	-0.24	-0.48	-0.16	0.44	0.29	-0.30	-0.16	0.01	-0.14
54	0.01	-0.21	0.52	0.39	-0.34	0.11	-0.14	-0.10	-0.34	0.48
55	0.52	-0.63	0.25	0.65	-0.21	0.79	-0.78	-0.69	-0.83	0.88
56	0.60	-0.60	0.21	0.02	0.32	0.60	-0.36	-0.85	-0.68	0.26
57	-0.42	0.43	-0.01	-0.34	-0.06	-0.60	0.62	0.40	0.58	-0.42
58	0.14	-0.35	0.53	0.46	-0.29	0.34	-0.27	-0.41	-0.56	0.46
59	0.09	-0.15	0.05	0.40	-0.25	0.25	-0.37	-0.09	-0.32	0.57
60	-0.01	0.13	-0.26	-0.34	0.21	-0.21	0.26	0.14	0.38	-0.52

VARIABLE	41	42	43	44	45	46	47	48	49	50
61	-0.24	0.42	-0.48	-0.44	0.18	-0.50	0.37	0.59	0.69	-0.51
62	0.81	-0.79	0.06	0.36	0.21	0.92	-0.86	-0.79	-0.81	0.61
63	0.43	-0.37	-0.22	0.37	-0.08	0.52	-0.56	-0.42	-0.48	0.55
64	0.53	-0.57	0.20	0.29	0.10	0.62	-0.66	-0.44	-0.59	0.62
65	-0.77	0.72	0.01	-0.24	-0.34	-0.87	0.73	0.88	0.83	-0.56
66	-0.10	0.32	-0.67	-0.30	0.19	-0.25	0.24	0.20	0.40	-0.47
67	0.34	-0.29	-0.01	-0.08	0.35	0.41	-0.45	-0.36	-0.43	0.51

VARIABLE	51	52	53	54	55	56	57	58	59	60
51	0.97									
52	-0.53	0.99								
53	0.78	-0.62	1.00							
54	-0.35	0.50	-0.71	0.99						
55	0.22	0.43	-0.21	0.60	1.00					
56	0.34	0.06	0.22	-0.11	0.38	0.98				
57	-0.27	-0.12	-0.13	-0.20	-0.39	-0.02	0.99			
58	-0.36	0.64	-0.64	0.76	0.66	0.23	-0.23	1.00		
59	0.00	0.28	-0.28	0.71	0.61	-0.20	-0.31	0.38	0.99	
60	0.20	-0.37	0.51	-0.82	-0.60	0.13	0.29	-0.57	-0.89	0.98
61	0.27	-0.59	0.58	-0.58	-0.70	-0.35	0.32	-0.89	-0.19	0.41
62	0.67	-0.03	0.39	-0.02	0.68	0.59	-0.49	0.26	0.06	-0.02
63	0.40	0.12	0.19	0.30	0.62	0.23	-0.31	0.22	0.66	-0.45
64	0.32	0.04	-0.06	0.36	0.66	0.15	-0.40	0.36	0.40	-0.41
65	-0.58	0.05	-0.39	0.10	-0.57	-0.72	0.47	-0.08	-0.07	0.03
66	0.16	-0.41	0.56	-0.68	-0.56	0.02	0.21	-0.79	-0.28	0.45
67	0.47	-0.18	0.13	0.05	0.37	0.13	-0.44	-0.18	0.36	-0.32

VARIABLE	61	62	63	64	65	66	67	68	69	70
61	1.00									
62	-0.41	1.00								
63	-0.12	0.39	0.98							
64	-0.45	0.51	0.25	0.95						
65	0.31	-0.80	-0.41	-0.52	0.99					
66	0.70	-0.29	-0.02	-0.39	-0.05	0.99				
67	-0.02	0.37	0.41	0.30	-0.51	0.00	0.99			

A P P E N D I X 16

RELIABILITY OF FIELD TRIP REPORT FORM VARIABLES

1.	Passive Observation	±0.73
2.	Active Observation	±0.73
3.	Expressive Activities	±0.67
4.	Small Group Forest Interaction	±0.76
5.	Small Group Social Interaction	±0.71
6.	Self Direction Discussions	±0.70
7.	Self Direction Forest Activities	±0.74
8.	Leadership Discussions	±0.83
9.	Leadership Forest Activities	±0.72
10.	Variety of Discussions	±0.70
11.	Discussion Origins	±0.69
12.	Forest Activity Origins	±0.68
13.	Depth of Discussions	±0.76
14.	Depth Forest Activities	±0.74
15.	Fight and Attention Getting	±0.71
16.	Distribution of Discussion	±0.80
17.	Energy Hyperactive	±0.73
18.	Energy Withdrawn	±0.90
19.	Antagonistic to Guide	±0.85
20.	Indifferent to Guide	±0.74
21.	Forest to Guide Interaction	±0.83
22.	Indifferent to Forest Experience	±0.92
23.	Interested in Forest Experience	±0.73

24.	Ecstatic About Trip	+0.72
25.	Describing Observations	+0.66
26.	Group Use of Concepts	+0.80
27.	Recognition of Problems	+0.77
28.	Concern for Problems	+0.83
29.	Flexibility with Problems	+0.70
30.	Field Trip Content	+0.73
31.	Protection Norm Unreasonable	+0.97
32.	Respect Norms Unreasonable	+0.83
33.	Safety Norms Reasonable	+0.70
34.	Problem Solving Discussions	+0.32
35.	Discussions About Feelings	+0.21
36.	Games	+0.49
37.	Conversations	+0.68
38.	Small Group Guide Interaction	+0.48
39.	Variety Forest Activities	+0.64
40.	Forest-Fight and Attention Getting	+0.47
41.	Flight-Guide	+0.48
42.	Flight-Forest	+0.54
43.	Amount of Forest Adjustment	+0.55
44.	Amount of Guide Adjustment	+0.61
45.	Group Climate	+0.58
46.	Task	+0.44
47.	Group	+0.49
48.	Individual	+0.43
49.	Relate to Family Life	+0.27

50.	Relate to City Life	+0.54
51.	Relate to Outdoor Experiences	+0.29
52.	Relate to Formal Education	+0.48
53.	Active	+0.66
54.	Quiet and Orderly	+0.64
55.	Friendly to Guide	+0.68
56.	Intimate with Guide	+0.19
57.	Names	+0.45
58.	Processes	+0.41
59.	Abstractions	+0.39
60.	Use of Facts	+0.52
61.	Cooperation	+0.63
62.	Resolving Disagreements	+0.60
63.	Protection Norm Accepted	+0.59
64.	Respect Norm Accepted	+0.34
65.	Protection Norm Enforced	+0.35
66.	Respect Norm Enforced	-0.14
67.	Safety Norm Enforced	+0.45
68.	Safety Norm Unreasonable	+0.63
69.	Unhappy with Forest Experience	+0.24

APPENDIX 17

VALIDITY DATA

INSTRUCTIONS

Suppose that you had guided the field trip from which the following data were obtained. In your own words describe the field trip under the following headings:

1. Your discussions with the children.
2. The children's interactions with the forest.
3. What you as a guide did on the field trip.

To illustrate your descriptions use actual examples of: incidents, children's behavior and your actual actions as much as possible.

GUIDE 1 FIELD TRIP 1

Your Discussions with the Children

Places visited: Bird feeder (planted pine and spruce)
Hot pond
Blossom corner
Quarry

The children are enthusiastic about the field trip. They look for things and want to learn about them so the guide is there to help them discover on their own what they found.

The discussions are initiated by the children but developed by the guide.

Example 1. Mushrooms - How come the mushrooms grow on tree stumps? What good do they do there?

Example 2. In the planted pine and spruce - Why are the trees in a straight line? - Why is there a row of trees cut down? - Do the pine needles and branches decompose just like the leaves and tree stumps?

Example 3. Holes in trees - What made them, is it good for the tree? The guide is there to get the children to discover the answers by themselves.

The Children's Interaction with the Forest

The children were off in the forest mostly in small groups so everyone found things such as caterpillars, beetles and ants. Mostly, they were interested in finding out things about the forest. They were able to come up with intelligent answers to problems such as how to count the number of frogs in a pond. They were afraid of animals, reluctant to catch frogs and toads, etc., but not enough to hinder activities.

They were interested in what the group as a whole wanted - a very homogeneous group. They were all keen about the field trip, they wanted to learn actively.

Guide Task

The guide supplied information, descriptions of forest objects, processes such as tadpoles turning into frogs, etc., how a tree rots. The guide has to get the children saying things, giving the answers to their questions.

Discipline

For protection: Not to hurt the animals, not to scare them, put water in your hands when you catch a tadpole and get the children to tell you why.

For enjoyment: Mostly not to pick flowers, and again why?

For safety: Roots that stick out of the ground - branches - watch where you are going.

GUIDE 2 FIELD TRIP 1

Your Discussions with the Children

This group was very interested in the forest. They enjoyed the field trip (the majority of the children) and were active. They interacted in the forest and asked a lot of questions. While discussing problems, like trees that had been cut down, they wondered why trees had been cut down. After examining the stump, they decided that the tree was rotten and was no good and that the people could use the wood for fires or to make paper. They were attentive and enjoyed discussions. We walked and the children would ask lots of questions about the forest - Why did trees have paint on them? We looked at holes in bottoms of trees, we caught toads and discussed the difference between frogs and toads. Then "the" question would come up: "What should we do with the poor little toad?" Some children wanted to bring it home, others wanted to leave it, so we discussed what the toad had for food and where he would like best to live and we figured we should leave it there! These children were interested and wanted to know and learn a lot.

The Children's Interaction in the Forest

The children enjoyed the forest very much, it was easy to see. They liked to walk around and interact with the forest. They would find lots of things and ask about them. We turned over logs and found insects , like ants' eggs, centipedes, we saw insect eggs that had been laid on leaves. The children were interested and enjoyed the activities and knew quite a bit but were able to learn more through discussions. A few children liked to run around and as usual there were a few that went wild, taking bark off trees or beating leaves with sticks. A few enjoyed picking flowers - attention getting ! But all in all they were active and enjoyed inter-

acting with the forest. They enjoyed looking at trees and finding out the names of them and then pointing them out after.

What You as a Guide Did on the Field Trip

At the beginning the guide had to give suggestions, but after a very short while they caught on and figured out what they were here for. As for directing them, there wasn't much to do. I answered questions and explained things to them. Some children knew quite a bit and this helped in the discussions. I had to deal with a couple of children who were a bit "bratty" and had quite a bit of group pressure on them. After a while they caught on. I sort of helped in directing discussions, asking them questions so we could come up with some answers to solve our problems - like, for example, how we would count the frogs in the pond. All in all, I was there to answer questions, and help them understand about the forest life and what happens to everything and why and how come, with their help and suggestions.

GUIDE 3 FIELD TRIP 1

Discussion avec les Enfants

Ce groupe est très intéressé par la forêt, mais l'excursion ne se limite pas à de simples observations; on peut voir que les enfants trouvent plusieurs choses mais le seul fait de voir n'est pas suffisant pour eux, ils sont surtout intéressés à savoir pourquoi ou comment chaque phénomène s'est produit. Puisque ce groupe semble avoir de grandes capacités pour discuter, le guide ne sera là que pour aider à la discussion ou plutôt mettre un peu d'ordre dans les idées données par les enfants. Si l'on prend pour exemple, les "bird signs" et les "insect signs" qui ont été discutés, on peut dire que les enfants auraient pu

savoir comment et pourquoi ces "signs" ont été faits, le guide par exemple peut les aider dans la discussion en demandant si, par exemple, les trous de pie bois ou les "insect signs" sont les plus nocifs pour les arbres. On peut remarquer que c'est généralement le groupe qui trouve les réponses. Puisque ce sont surtout les "signs" - birds, mammals and people - qui sont été discutés "in depth and repeatedly", le rôle du guide a surtout été d'aider les enfants à pouvoir comparer, faire les relations et analyser les phénomènes qui se produisent dans la forêt, ce à quoi les enfants semblaient arriver facilement.

The Children's Interaction with the Forest

Ce groupe est "totally immersed in activities they do in the forest" c'est pourquoi on retrouve souvent la plus grande partie du groupe occupée à la même activité, quand on a "forest interaction" on a toujours plus de 15 enfants, ceux-ci semblent d'ailleurs très actifs. Ils observent, cherchent et ensuite essaient d'expliquer. A part le 20% de "passive observation" - ce qui n'est pas tellement, on peut voir que les enfants sont complètement "pris" par leur expérience dans la forêt. Le peu de "social interaction" montre leur intérêt pour la forêt. Ce groupe est très actif, il veut tout voir de près, tout toucher, c'est peut-être ce qui amène le grand nombre de "protection and safety". Par exemple, des enfants qui voudraient voit s'il y a quelque chose dans un trou d'écureuil, pourraient mettre leur main à l'intérieur - ce qui amène un "safety discipline" - ou prendre un bâton et fouiller dans le trou avec celui-ci - ce qui amène un "protection discipline". On constate que les enfants ne veulent pas endommager la forêt. On peut aussi déduire que leur désir de tout voir les éloignait peut-être un peu trop du guide - ce qui

entrainait d'autres "safety disciplines" - surtout pour les groupes de 2 ou 4 enfants. On voit que ce qui a attiré les enfants les a attirés pleinement ce qui a été observé et discuté, l'a été avec activité à plusieurs reprises, la forêt intéressait donc beaucoup les enfants.

What I as a Guide Did on the Field Trip

Durant un "field trip" comme celui-ci mon rôle de guide, n'as pas été d'initier des activités mais de les compléter, d'aider les enfants à mettre leurs idées en place. Ce groupe observe, discute et analyse, je dois donc donner certaines informations supplémentaires. Mes fonctions pendant un "field trip" comme celui-là sont peut-être plus d'aider les enfants à développer leurs capacités naturelles que de les stimuler à trouver certaines activités. En plus de les aider durant les discussions, je dois quelque fois modérer leur élan que ce soit pour la protection ou la sécurité. Et surtout pour la protection, la grande activité des enfants, les amène parfois à oublier les choses à faire ou à ne pas faire pour la protection de la forêt et des animaux et pour leur propre sécurité. Par exemple, un groupe qui voudrait aller observer quelque chose et qui irait passer dans l'herbe à puce, je devais lui montrer d'abord ce qu'est l'herbe à puce puis prendre un autre chemin. Pour la protection, des enfants qui, après avoir attraper des grenouilles ne voudraient plus les remettre dans l'étang, devraient comprendre, soit par les explications du guide ou la "group pressure" si nécessaire, que les grenouilles ont besoin de la forêt et doivent y demeurer. Cans ce groupe il semble d'ailleurs y avoir 4 ou 5 enfants qui sont peut-être trop emballés devant la forêt et qui doivent parfois être modérés par le guide. Mais dans une telle excursion le guide doit surtout laisser aller l'enthousiasme des enfants jusqu'à ce que celui-ci ne soit pas nocif pour la forêt et les enfants eux-mêmes.

GUIDE 4 FIELD TRIP 1

Discussions with the Children

The first discussion we would have would probably be the erosion sticks. The children would ask what the sticks were for; then, after I had got them to compare them, one of them might notice the one in the field has mud on it, the one in the grass none. Then I would ask them why they think one is soiled - the one in the earth - and why the one in the grass is not. If they do not know I will tell them.

Going into the forest we would discuss the poison ivy. Later I would point out old tree trunks that are decayong, speak about them becoming earth. This would help when we arrived at the soil pit. Here probably only half the group would be gathered.

Along the way we would speak about tearing bark off trees and writing on trees. If it is good, why not? I would really try to make them realize that writing on trees is bad because many think it is cool. We would discuss the insects and if they were good for the trees.

Every time we saw a tree with a mark or hole they would stop and again repeat how they - the people - had killed the tree. Only about half the group would do this. Most of the group were looking for holes, bugs, etc. They were very active always looking for things, but never really interested in discussing them. They were very forest interested. They liked the forest but only 11 or 13 were interested in learning about it in depth or at least listen to the discussions. We also discussed the difference between a frog and a toad when we were at the "hot pond". Again only a few children would be listening, the others would be trying to catch things in the pond.

When we were at the insect traps, we would also have a discussion. While we were discussing one of the traps - plate - the other half of the group would be looking at the other trap.

The Children's Interaction with the Forest

On the way into the forest, going along centre road, the children would feel the maple leaves - especially the crimson king maple. They thought the leaves felt like plastic. When they saw the oak leaves on the other side, they would read the signs and say the names.

They would ask what ferns were, moss, etc. They would find insects and show them to each other. Looking at stumps they would try to find insects. When we were looking at things on the ground they would find leaves and try to identify them. Often they would run along the trails and wait for me at the end. They would pick up branches and hit trees with them. At the soil pit they would feel the layers of soil and say how it felt.

They would find frogs and tadpoles at the pond. When they saw a tree that was cut they would look at it and try and see if they could pick it up. They continuously found holes in trees, looked into them and tried to deduce what could be living in them. Holes in the ground also intrigued them and they would say what they were.

At the beginning we saw maple trees with holes so later when we saw trees with small holes in them they would conclude it was a maple.

Many of the children would look for chipmunks and squirrels running along in the forest; when they saw none, they would want to know if they were going to see any little animals.

What You as a Guide Did on the Field Trip

At the beginning I would ask them if they recognized the trees along centre road just before we go into the forest. Once I got them interested in naming the trees I would let them go ahead and continue. Occasionally I would ask them if they would like to learn the name of another tree and I would tell them "beech" - after we got into the forest. If the children were looking and then running on I would tell them to feel the bark or in the case of cedars, to smell them.

For the children who were running ahead I would ask them not to go so far ahead unless they could see us. Sometimes I would call them back to see or hear something - a discussion we might be having.

I would also have to discipline the boys or girls who were hitting the trees with branches or sticks.

When they brought things to my attention I would question them and try to help them if they did not recognize them. When at the pond I would try to catch frogs, tadpoles, salamanders, etc.

When I saw leaves occasionally I would ask them if they recognized them and try to hint at what they were. Then I would ask them to try to find a leaf like the one we had - for example, find an oak leaf on the ground.

I would walk by things, stop, look at them and walk on, hoping that the things would be brought to the children's attention. Often the children would look at them too and then ask what they were. I see a birch tree. Since I have already told them what a birch tree is, I'm hoping they will see it. I know they will not, so I walk by, touch it and they will say "another birch".

GUIDE 5 FIELD TRIP 1

Discussions with the Children

The children are interested and curious, they find things and get ideas and don't settle on the first answer that's offered for everything. Most of them know the names of things from having been in the country before. They can figure out for themselves that leaves and wood turn into ground and make food for other trees. They could figure out that the woodpecker holes in the trees along centre road made the branches fall. They would know what woodpeckers look for when they make little holes and they make big holes. When they saw holes in trees they would suggest that some must be chipmunks' homes because they were small, others would be squirrels' homes because they were big. They would suggest rats or moles for the holes in the ground. They might be able to figure out why fungi grows on trees if I get them to think what trees get from the ground. We once caught a toad with a group like this and kept it until we caught a frog about the same size. We compared the skin and saw that the frog had skin between his toes so he could swim better. We talked about where they live and put them both in the pond and saw that the frog swam fast and liked to dive, but that the toad swam slowly and liked to keep his face out of the water. They would know about tadpoles, and at the insect traps they could figure out that the bugs think that the yellow pie plates are flowers and that they hit the glass and fall in the water. They might demonstrate by fishing some ant out and throwing him against the glass. If there aren't many bugs and the glass is dirty, they might say that the bugs can see the dirt so they fly around the glass. After we've been at the pump with a group like this, if we have some time left, I can get them all to sit under the fir trees in the field

and we talk about what's good and bad for trees, and what trees need to grow.

The Children's Interaction with the Forest

Since many of the children have been in the woods before, they would probably feel comfortable there and they know what to expect (mosquitoes wouldn't shock them too much). They might take quite a few things for granted, though, and have a lot of definite ideas, many of which are wrong, about what is bad and good (e.g., they don't like men cutting trees and are afraid of snakes). They are active and look for things, they don't expect the animals to find them. They're more likely to ask "Do a lot of squirrels live around here?" or "When will we see a squirrel?" than "Where are the snakes?" or "Have you ever found snakes around here?" They do a lot of running and shouting, stomping in the mud, splashing in water and climbing trees; but most of them are interested in seeing, touching and finding out about things. It might be hard to make them understand that they are not the only people who come to the forest or that there are only a limited amount of frogs in the pond. If they won't be convinced by reason and still try to sneak a frog home in their pocket or plague the guide with sad stories about how they don't have a dog, only one frog wouldn't matter, and that they would take really good care of it, you finally have to give up and tell them that nobody is allowed to take anything home. There's one child who isn't particularly thrilled by the field trip, this could be someone in good clothes, or just someone who isn't interested in forests. Some of the children are excited and very thrilled with the field trip. They could show this just by running and shouting a lot. One boy once told me he'd like to live in the forest forever and eat frogs' legs, leaves, grasshoppers, and honey. Today I had a very little boy with glasses who

spent a lot of time finding different shapes and sizes of dead leaves and asking me what they were. Near the end he came up to me and said "You sure can't say there aren't a lot of leaves in the forest".

What You as a Guide Did on the Field Trip

Since the children are already interested and curious, the guide doesn't have to do any prodding to get them involved. The guide has to get them thinking about things, ask them questions and give them information. When they don't like certain things such as men cutting trees, I try to get them to see that there can be good reasons for doing that, such as if the trees are very old or sick, they might be dangerous. If they don't like certain animals such as snakes, I try to catch one and (especially if it is a small one that doesn't bite the guide) they usually end up liking it. Today I had some girls who were afraid of frogs. We found a whole lot of little ones that had just changed from tadpoles. I put one in one little girl's hand and she was really thrilled. She told all the others that it didn't hurt and everyone ended up liking frogs. Once I showed them poison ivy as we went into the woods. One girl had had it before and talked about how awful it was and how it itched. A little later she came up to me and said "I really feel comfortable in the woods now that I know what I shouldn't touch so that I won't get that awful stuff again that I had before".

When we get near the bird feeder, I almost always give them a choice of going to the bird feeder and maybe seeing a bird or going to the pond to catch frogs. They always decide quite fast on going to the pond.

With a large noisy group like this, I usually have to call them together quite often, and get some to slow down and some to hurry up. Since there is no teacher I would have to count them once in a while to make sure I didn't lose one.

GUIDE 6 FIELD TRIP 1

Discussions with the Children

I'd love to have this group for an actual tour. They were terrific children. All I would have to do is hop from group to group and answer and ask questions about what they find. Occasionally I would have to get them to stop and think and talk about what they had found but this didn't happen very often.

For example, they found a hole high up in a tree:

Child - Hey, look at the hole up in the tree, what is it - a squirrel hole?

Me - Do you think that a squirrel would make that hole?

Child - Maybe, but maybe it was a woodpecker.

Me - Why would they make the holes?

Child - For a home.

Another child - To look for food.

Also on this tour there would be a high amount of feeling discussions. This group would really like the woods. Probably a few of them have never been in the woods before. There would be comments such as "Is it ever beautiful in here", "Oh! This is nice", "I don't ever want to leave", "It's so beautiful".

The Children's Interaction with the Forest

Right from the beginning the children start looking for things, exploring, running ahead, following animals, searching for them, looking at different flowers. At the pond the children just took off when I found the net and pans. They took them and started catching stuff, looking at the stuff, yelling that there was something over here. I imagine that in this

enthusiasm 1 or 2 boys would land in the pond. "Hey, I see the hole where the maple syrup was" and the children run off.

The children lift over rocks looking for bugs; find holes for squirrels; find more of the stuff that had been discussed with the guide previously, i.e., stumps turning to soil, more flowers, marks on trees.

Most of the time would be spent exploring. A few of the boys would run ahead and a few of the girls would stay close to me and just walk along and look.

One of the boys would catch a frog and the others would run around and hold it or try to see it.

In the discussion about frogs all the stages, what they eat and what eats them, were discussed with this group.

What You as a Guide Did on the Field Trip

Most of the functions would be problem solving - asking questions and answering those of the children, and pointing out things to them.

Group functions would be calling the children back from running ahead; keeping them out of the poison ivy - continually; also explaining how to put things back after the group had looked at them. Not picking flowers will also be discussed.

On an individual basis one boy wanted to keep a tadpole and time must be spent explaining to him why it must be left here.

GUIDE 7 FIELD TRIP 1

Discussions with the Children

Group appears to be keen and want to learn and explore. Children seem very interested in guide and forest. Tour would begin with a group of

children around me asking questions about what they were to see, where they were going, how long it would take, etc. There was a lively atmosphere of children walking to look over, talking about the edge of the forest, maybe running ahead a bit to see what is next, looking for animals; a lot of action and movement after having to sit still for talks. I would begin with a discussion about trees along centre road, e.g., maple trees at beginning - reading names of different kinds followed by what do we get from the sugar maple tree? Sugar? - followed by talk about sap, cooking syrup. All children are not listening; some are running about looking at trees and showing other children points of interest, since they want to see actual animals. The children are really doing activities on their own. I would encourage them to look for toads, salamanders, etc., instead of running about and missing things. What sort of animals do you find in the forest?

Talks would tend to be directed towards the children who were keen on listening, let the others explore. When we had found something great all the children would run back, since they were all keen on learning. Most of the children would hear major discussions and problem solving questions and be very keen on knowing more. With this group discussing would be more problem solving and decision making to stimulate their thinking more; e.g., Shagbark, hickory bark, sick or natural? What caused tree's disease? Why 1946 sign in the forest?

Adventurous children were very keen on woodpecker holes, birds' nests and animal homes. I would encourage them to find and talk about these more. A major part of the discussion would also include names of trees and matching leaves, different kinds of plants, trying to get the children to relate them to something they know, e.g., spruce and pine trees (different

needles) by spruce beer gum.

This tour would be a very free type of tour with the children scattered exploring and talks being directed at interested ones. This number would fluctuate greatly from the pond and road area to the forest in discussions. Some talks would be aimed at overly-keen children sticking sticks in animal homes and about not hurting animals they were able to catch. The talks are varied.

Children's Interaction with the Forest

This group would react to the forest environment very quickly. They would really enjoy the freedom. It would tend to be very flexible with a group like this, as they are gaining from the forest experience. The explorers would be off scattered along the sides of the trail from the start. Particularly on their own and by my encouragement they would be very observant of the different forest components and point them out to the rest of the group. These findings would tend to make up a large part of the field trip.

The major part of the field trip has the children exploring mainly in groups through the forest. They have had previous outdoor experience and so they know what a lot of the things are and are able to show them to the rest of the group.

These children are very interested in finding animal and bird signs and tend to scatter over the wide area in search of "bigger and better". Squirrel and rabbit holes are a big thing. The groups are always looking for more but may tend to become a bit over enthusiastic. This also concerns toads, frogs, salamanders and tadpoles, which may be damaged by the children's excitement. Keeping tadpoles wet is a major problem.

There is a lot of child interaction with the forest but most of it tends to be in smaller groups. Each child almost seems to be urging the others on by what each of them sees. Yet the children tend to stay with their companions. They aren't really keen on wandering off by themselves.

This is a very easy group to guide as they are able to see and experience the forest without too much reservation. There is flight from the forest but this is upon catching an animal or a snake. They really enjoy themselves in the forest environment without the help of the guide.

Discussions with the Children

This tour is a good and interesting one which doesn't tend to drive a guide up a wall. They are active, enthusiastic children, who tend to need some reprimand, though.

Most of the time was spent helping the group get through the route and questions asked. Children asked questions and wanted to know about the things that were found. A lot of different problems were discussed. These children wanted to know where we were going, why the bird feeder had been put up, why the tap on the trees, why did we hide the net in the bushes? They were very interested in wanting to know a lot, so a good deal of the guide's time is spent in giving explanations of topics of interest. But also, since a very active group tended to spread too far at times, there were also problems of redirecting some children's interest to help the group more in their activities. This was just basic help given to a group to enable them to make their own field trip more enjoyable; e.g., encouraging children to find different things, stopping fights over what children had and had not seen (deer).

There was also an individual problem of dealing with thirst, hunger, complaints. Very small adjustment problems had to be overcome. One boy

had to be made to realize that he was hurting the frog holding him that way or wanting to take him home.

GUIDE 8 FIELD TRIP 1

Discussions with the Children

Children's active observation probably requires very little prodding. They share leadership and questioning and answering; some discussions not given to entire group.

Bird Signs - The children would probably notice the holes in the fallen trees or perhaps I would have to ask "How did the holes get in the tree?" "Why do woodpeckers make holes in trees?" Perhaps I would talk about the Yellow Billed Sapsucker since the holes are in rows. Then I would ask if woodpeckers are good or bad for trees to see how the group can solve a problem. This group proved persevering with a problem and imaginative.

Forest - The group may notice that the forest is dark as we enter it, and I may ask why? Also they may ask what kind of things we find in the forest, and I would ask them what they thought they would find. Feelings and discussions about whether they liked it in the forest may develop, since "flight" was high probably with some children.

Insects - The children were very observant and probably turned over bark pieces and logs or rocks and found insects. I would ask why the insects live under rocks. Since the children were imaginative they probably could come up with solutions. Also they might notice the insect eggs on trees and I would ask them what would happen when the eggs hatch and if the insects are good or bad for the trees.

The Pond - The children are actively observing at the hot pond. They probably asked a lot of questions about what they saw at the pond or

around the pond, such as muskrat tunnels. They could probably tell me how a tadpole turns into a frog. Maybe several children had to be told that the tadpoles couldn't stay out of the water long. This probably was repeated for a few children who were excited and therefore thoughtless. Since "flight" was high probably some children showed fear of the frog or tadpole.

There were quite a great number of social discussions with the guide. These may have not required the guide to say very much. It was probably just listening to stories about the children's previous outdoor adventures with family and friends. Also it may have involved questions about the bell.

Children's Interaction with the Forest

The group ran through the forest and found things. The children usually reacted with the forest in subgroups of 2 - 4. At the pond they were in groups of 5 - 10. There were many leaders. The group had a great variety of activities. They probably looked in holes of trees, turned over logs, saw squirrels, found fungus, noticed trees diseased. In many cases they would call the guide to explain. At times the group was totally immersed in activities. This might have occurred after one child had found a salamander under a rock. Other children may start to search for them under logs, bark pieces, or other rocks.

At the pond the group probably organized themselves fairly well with the net trap. There may have been arguments at first but they resolved them themselves. Probably some of the children didn't get a chance to use the net but they could look for frogs or tadpoles to be caught instead. Thus a compromise was reached.

Three of the children were hyperactive and ran most of the trip. Several of the children were quiet and probably stayed close to the guide

and observed the forest relatively passively. The majority of the children, however, dispersed into the forest and interacted with it. One child showed indifference towards the forest. He probably stayed close to the guide or lagged behind.

What You as a Guide Did on the Field Trip

The guide was concerned mainly with task functions. Since the children were involved actively with the forest, they probably were constantly finding things and bringing them to the guide for identification. They were probably also asking questions about the forest such as what could live in the holes. The guide also posed questions to the group such as why the wild flowers are dead and what plants need to live. The guide was also involved in group functions. There were some attempts to keep the group together. The guide also tried to keep some members from getting lost or destroying the forest.

GUIDE 9 FIELD TRIP 1

Discussions with the Children

A very satisfying group to work with. Nearly all the discussions result from things they have noticed and brought to the guide. They are an ideal type of group to use the question method with as they are curious and intelligent enough to pursue a problem in depth. They were able to deduce why there were logs piled up on centre road by being led with questions. Where did the wood come from? Why are there holes in it? Was it cut down or did it fall down? Why did it fall down? When did it fall down? Everyone answers questions. The others usually listen and then add to the answers of the others. A "forest discussion" was held on the difference between hardwoods and softwoods. Since the group was

relatively quiet, chipmunks and squirrels were seen repeatedly. What the difference is, was discussed, and also what they eat and where they live. Trees - their bark and leaves, were discussed repeatedly - also the functions of the various plants including a discussion on chlorophyl. People signs, like the red mark on the birch tree on centre road were discussed by questions and the children were able to see that the trees were sick or dead or that there were too many. Feeling discussions were mainly concerned with their reasons for fearing certain things - frogs and toads and salamanders. There were also favorable discussions about why they liked the forest -"it's cool, shadier - the air is nice". Their reasons for not liking the frogs are generally because of the feel or because they surprise them by hopping. Some of the fear is conditioned - the girls were expected to scream.

Children's Interaction with the Forest

The group becomes very involved with the forest and have had enough previous experience with the forest that they are not hyper and they know how to look for things, and they appreciate the difference between something and something rare and therefore bring interesting things to the guide and don't continually point out "squirrel holes" but rather a variety of things. Although they are not a hyper group they are not passive either, and they sometimes run, chatter happily, shuffle in the leaves, or squish in mud along Upland trail. The passive observation consists mostly of walking along, but there are also several children who just watch as the others catch things at the Hot Pond. They initiate things like turning over stumps on their own; they notice mushrooms, moss, flowers, birds' nests; more subtle things like the exposed roots along

Hickory trail are not questioned by them, but they are interested when they are pointed out to them.

Guide Functions

The majority of the time, the guide was answering questions and leading the children through problem solving attempts. Sometimes the group went off course or too far ahead and had to be called back. There was also squabbling over the net at the Hot Pond which had to be dealt with. Certain group misconceptions such as "toads give warts" had to be dealt with. Also group complaining about mosquitoes along Upland trail, requests for water and occasional cries of "I'm hungry" had to be dealt with. The "individual"guide functions were mainly due to the three hyperactive children who were so keen and excited that they almost killed a frog at Hot Pond and had to be forced to put it down. There were also others who had to be told repeatedly, the reasons for not taking things home. Several had to be told repeatedly not to go too far ahead and others had to be reminded about the poison ivy around the Hot Pond.

GUIDE 10 FIELD TRIP 1

Your Discussions with the Children

The majority of the children were interested in learning about the forest. There were about three who discussed among themselves and explored the forest on their own. The discussions with the guide usually involved almost all the children and questions and answers flew quickly until the children thought they understood.

Guide: If we stop for a minute we might be able to hear a bird singing. There it is. Can you hear it make the sound of its calling "Teacher, teacher, teacher?"

Child 1: Oh ya!

Child 2: Doesn't it know any other words?

Child 3: It doesn't really sound like it's saying "Teacher, teacher, teacher!"

Guide: This bird is called an oven bird. Do you know why it is called an oven bird? It makes a nest like a round ball with a hole in the front so the bird can get in. It looks like an oven. It's such a small bird we don't see it very often but I have a picture of it here so that you can see what it looks like.

They ask about the wood cut down along centre road. I explain to them that the woodpecker had pecked at the wood (they can see the bird and the holes) and ask them why the bird would want to peck the wood. Are woodpeckers good for trees (yes or no) ? I then explained that the branch had been weakened by holes and that a big storm in the winter could cause the branch to break. The only way that it could be removed was to have men come and cut the branch in pieces (men working). What kind of tree was it?

We discuss the trees along centre road and they can recall what kinds of trees they are. They point out the beeches, maples, white birch, etc. We can see the planted pine and spruce. Does nature plant her trees in rows? Why would they cut down the whole row? (room to grow, sun, a path).

They can see the bacteria on top of the dying stream (and call "Pollution"). Explanation about bacteria and how the sun (warm weather recently) has dried some of the water up. Is this "people" pollution? They hadn't heard of bacteria but they try to understand.

The discussions are all spontaneous. Feelings were discussed about cool shade and thirst, etc. There is a certain amount of wit and they take in what they are capable of. If they are truly interested it shows

but they wait their turns for my attention, also interested in other children's questions and experiences.

The Children's Interaction with the Forest

The children were prepared for this by their teacher in school. They were keen to see the forest but they knew they were there to learn also. Except for those few who became excited and didn't want to listen the tour was generally run by what they found and heard. The explorers accepted me as a guide but they were determined that it was more important that they go on a quarter of a mile ahead. There was loud shouting and calls to "hurry up", that there were better things ahead. There was no obvious role playing from them. If there was something important that they should know about, they probably pass it off. They would find things but probably just comment or brag about it.

There were some who started out as "clingers", probably slightly fearful of the forest. These children liked the forest but were not sure of their place in it. They were fairly intelligent and could relate to their previous experiences. Their wit and knowledge allowed them to learn and eventually appreciate the forest more. They were actively observant but sometimes hesitant to touch.

The remainder of the children seemed to be at home in the forest from the beginning. They were excited to find and learn but they were more energetic than the clingers. They more or less carried the field trip.

Questions about the forest were many and most of the forest components were discussed. At the beginning they were slightly passive, probably because they did not know me yet or their limits. Towards the end they were also passive, probably because they were pretty well talked out. Expressive physical activity was obvious along some parts of Centre Road

and up through the Arboretum to the parking lot.

Some of the girls showed flight from the pond because of the slimy frogs, etc. It took some coaxing to get them to relax.

They liked the forest.

Guide Reaction

They seemed like a good group from the beginning. The wrong answers for the questions seemed slightly deliberate but no indication of problems. Between the parking lot and the forest the children were very orderly so it was easy to discuss in depth such things as the maple leaves, oak leaves and the splash sticks. As we came into the forest personalities began to show through. It was obvious that the "explorers" would not be controlled so I let them go ahead as long as I could see them and they stuck to conservation norms. Discipline for these children had to be repeated for some protection norms. Group pressure was applied when they would not listen and finally for two of them rules had to be set down. The rules were accepted finally as they were basically friendly. It was obvious that these children needed to follow some rules so that they knew where they stood. I should have realized that from the beginning.

For those children who kept close it was necessary that I listen to their personal experiences so that they could familiarize themselves with me and the forest. Unfortunately there was only half an ear for each child since there were others who were actively exploring, observing and returning to me with questions. Things gradually died down so that they all could get turns and each one would listen to the other. The children more or less took the tour and I would just keep pouring forth information.

There was considerable discipline but no more than usual and generally the children accepted the norms.

SUBSTITUTE 1 FIELD TRIP 1

Discussions with the Children

Discussions with the children are not difficult to undertake as the children are keen and willing to learn. Their curiosity brings up many questions to which they want a satisfying answer. Guide - child relationship is strong in the sense that the child builds up a trust that the guide will answer any question that may arise, and therefore is encouraged to question as much as he can. Most of the group gets involved in the discussions and the children don't have to be told to listen. Most do so voluntarily. As seen from the pre-test and field trip readings, protection, enjoyment and safety rules have to be stressed on some of the children. Group pressure is easily exercised on the few who won't listen; for the rest they are interested and don't like to be disturbed by the others. Because of their willingness to learn, children can easily be taught complicated words. When a question is asked, group requires a simple but explicit answer. They want to know the reasons for everything and discussions in that case prove to be successful.

Children's Interaction with the Forest

The children want to see as many things as possible. Sometimes conflicts may arise when two people find different things at the same time, or when, for example, the guide is explaining some kind of process and suddenly a chipmunk or squirrel appears. Children are more interested in seeing things than learning about them, especially in the first part of the field trip. Later on they show interest in increasing their knowledge. Children work together as a group. What one is interested in, most of the others are, and if not, respect the questions he may ask. The boys are more keen

on finding grass snakes, toads, frogs and salamanders than the girls are. They are the ones who cause dispersion in the group and this, because of their willingness to find something new. All members want to contribute something to the group by discovering a new kind of tree, a fungus on a trunk, a baby bird walking around in the grass, or all kinds of different things of that sort. When an unknown object is discovered, group comes to the guide for explanations or for more information that they require. Group also has a good power of observation. They do not, for example, merely glance at the different types of trees as they pass them but look at the variations in the forms and sizes of the leaves and the color and shapes of the bark.

What You as a Guide Did on the Field Trip

The function of the guide on this field trip was mainly to lead the children around and to put those who weren't interested on the right track as to what to look for and what they should do. The group as a whole was doing most of the leading as they decided what types of activities to get involved in. The group usually took the initiative and the guide made a few suggestions when needed. The guide was there mainly to control the activities and make sure that all children had an equal opportunity to contribute in some way to the field trip. When a need was felt for some kind of discipline, guide was there to set things straight. When a problem or question came up, children looked to the guide for suggestions. The function of the guide in this case, was to try to let the children resolve the problem themselves, for the group had the capacity to do it themselves. When a group cannot reach an agreement, guide must interfere and resolve the rest of the problem for them. The guide also pointed out some problems

that the children are not liable to identify themselves. Guide - child rapport was very strong and both worked hand in hand to obtain some constructive results.

FIELD TRIP 1 DATA

BEFORE QUIZ DATA

			B	A	G			F.T.	1
	1	2	3	4	5	6	7	8	9
L	0	8	1	4	0	3	0	4	0
D	0	0	3	4	3	10	0	0	0
N	□	••	P	6 [1]	13 [2]	1 [3]		BOYS	12
P	⊠	•	E	17 [1]	0 [2]	3 [3]		GIRLS	8
A	::		S	2 [1]	12 [2]	6 [3]		TOTAL	20

INTERACTION AND DISCIPLINE DATA

			C	TOTAL	20	G			F.T.	1
	G	F	S		G	F	S	P	R	S
1	5	15	0	11	5	15	0	⊠	:.	::
2	18	2	0	12	18	2	0			
3	14	6	0	13	20	0	0			
4	0	20	0	14						
5	0	17	3	15						
6	7	13	0	16						
7	2	18	0	17						
8	3	17	0	18						
9	16	2	2	19						
10	16	4	0	20						

Trail 6
Grade 3

THE FIELD TRIP REPORT FORM

Field Trip Report

Guide Interaction Content (% based on occurrence)

a) .25. feelings
b) .75. problem solving

Forest Interaction Content (% based on occurrence)

a) .20. passive observation
b) .60. active observation
c) .20. expressive physical activity
d) .... role playing

Social Interaction Content (% based on occurrence)

a) .... athletic games
b) 100 private conversations
c) .... social games, role playing

	G.I.	F.I.	S.I.	Interaction Sub Grouping (% based on occurrence)
a)	.10.	.5.	.60.	1
b)	.30.	.30.	.40.	2 - 4
c)	.40.	.50.	....	5 - 10
d)	.30.	.15.	....	more than 10

	G.I.	F.I.	Self Direction (check ✓)
1	....	....	No drive. Guide has to dominate.
2	....	....	Group has some self propulsion, but needs considerable push.
3	....	....	Domination from a strong single member or clique.
4	.✓..	....	With a little prodding, group initiates and does activities.
5	....	.✓..	Group spontaneously initiates and does activities.

Distribution of Leadership (check ✓)

1	....	....	Guide does all the leading.
2	....	....	A few members always take leader roles. Rest are passive.
3	....	....	Some members take leader roles. Rest are passive.
4	.✓..	.✓..	Many members take leadership but one or two continually following.
5	....	....	Leadership is shared by all members of group.

Variety of Activities (check ✓)

1	....	....	Little variety in activities, stick to the same things.
2	....	....	Some variety in activities.
3	....	....	Considerable variety in activities. Try out new activities.
4	.✓..	.✓..	Great variety in activities. Continually trying out new ones.

	G.I.	F.I.	Activity Origins (check ✓)
1	....	....	Activities depend on the requests of the guide. Guide has to start and direct activities.
2	....	....	Group looks to guide for suggestions and ideas for activities. Group is interested but waits for guide to indicate and sometimes initiate activities.
3	....	....	By encouragement and making suggestions guide can stimulate group to choose and initiate its activities.
4	.✓..	.✓..	Group initiates and does activities on its own. Guide just offers occasional comments and information.

			Depth of Activities (check ✓)
1	....	....	Children are just spectators, don't get involved at all.
2	....	....	Little depth in activities, just scratching the surface, just going through the motions.
3	....	....	Some depth but children not increasing their skills.
4	.✓..	....	Considerable depth in activities. Children able to utilize some of their ability.
5	....	.✓..	Great depth in activities. Children find each a challenge to develop their abilities. Totally immersed in activities.

			Adjustment Type (% based on occurrence)
a)	....	.30	fight
b)	....	.70	flight
c)	100	....	attention getting

			Adjustment Amount (check ✓)
1	....	....	No adjustment or very little.
2	.✓..	....	
3	....	.✓..	Some adjustment but does not hinder activities.
4	....	....	
5	....	....	A lot of adjustment that does hinder activities.

		Group Climate (check ✓)
1	....	Climate inhibits good fun, behavior and expression of desires, fears, and opinions.
2	....	Children express their individual needs and wants but nothing about the group's interests.
3	....	Children freely express their needs and desires but joke, argue and complain about the rest of the group's interests to the detriment of the group.
4	.✓..	Children feel free to express their feelings and desires. They accept the rest of the group's interests and the importance of what the group as a whole wants.

		Distribution of Discussion Interaction (check ✓)
1	....	Everyone tried to get out of questioning and answering.
2	....	Questioning and answering done by a few children.
3	....	Many children do some questioning and answering.
4	..✓.	Questioning and answering are done by nearly all children.

Group Energy (number of children)

a) .3. Hyperactive and extremely noisy, excessive screaming, running and scattering. Communications are yelled and repeated with limited success.

b) .11. Active, noisy, quick to disperse and interact with the forest - normally will listen to communications.

c) .6. Respond quietly and orderly to communications and the forest.

d) .... Withdrawn, very quiet, very passive - negligible response to communications and forest.

Guide - Child Rapport (number of children)

a) .... Antagonistic or resentful.

b) .... Indifferent toward guide; friendship neither sought nor rejected, non-communicative.

c) 20. Friendly and interested. Attentive to guide's suggestions and behavior.

d) .... Intimate relations: openess and sharing, strong rapport.

Guide Functions (% based on occurrence)

a) .65. Task

b) .25. Group

c) .10. Individual

Group Interaction Direction (% based on occurrence)

a) .70 Forest than guide.

Forest - experience Outlook (number of children)

a) .... Antagonistic, unhappy, upset, or turned off.

b) .1. Indifferent, blasé, little involvement with forest.

c) .13. Interested, happy, enthusiastic, willing to do things in the forest and learn about it.

d) .6. Ecstatic or awed, express strong favourable feelings about forest experiences, not particularly interested in learning about forest.

Relating Observations and Information (% based on occurrence)

a) .... Relate to the structure and functioning of the human body, family or home.

b) 30. Relate to general knowledge gained from everyday experiences.

c) .70. Relate to previous outdoor experiences with family or friends.

d) .... Relate to previous knowledge from books or class room.

Describing Observations and Information (check ✓)

1 .... Use very general nouns, verbs and adjectives to describe.

2 .... Use simple specific words to describe things and parts of things.

3 .✓. Use proper nouns and some complicated words. Words have narrow meanings and are well modified.

4 .... Can use scientific words that are not part of everyday language. They may require a definition and be fairly abstract.

Information Classification (% based on occurrence)

a) .30. Names or descriptions of forest objects or their parts.

b) .55. Processes or actions which forest objects do or which happen to them.

c) .15. Abstractions giving explanations, reasons or predictions about processes or characteristics.

Group Use of Concepts (check ✓)

1 .... Group may repeat information right after it is given or imitate an action but does not pursue concepts much further than that.

2 .... Group recognizes, remembers and recalls concepts previously mentioned.

3 .... Group not only remembers concepts but compares them and reinterprets them in the light of new information and experiences.

4 .... Group is primarily interested in concepts to explain, predict, justify observations and abstractions.

5 .✓.. Group discovers concepts on its own. Creates worthwhile explanations and analysis of situations.

Recognition of Problems (check ✓)

1 .... Group rarely notices any sort of problem.

2 .... Group identifies only superficial problems.

3 .... Group notices obvious problems, overlooks subtle ones.

4 .✓.. Group has a questioning attitude and is intelligently curious.

5 .... Group has penetrating insight and consistently identifies problems.

Concern for Problems (check ✓)

1 .... Group has no capacity for a sustained attack on most problems.

2 .... Group does not discuss problems clearly; wanders, introduces irrelevant ideas.

3 .... Group will discuss problems and come up with a solution for the typical problem.

4 .✓.. Group is persevering and is reluctant to leave a problem without completing it.

5 .... Group is unusually persistent in all problem solving efforts.

Flexibility with Problems (check ✓)

1 .... Group abandons problem after one attempt to solve.

2 .... Group relies on steady plodding, shows little ingenuity.

3 .... Group shows some resourcefulness.

4 .... Group has only occasional trouble suggesting new, effective ways to attack problems.

5 .✓.. Group is highly imaginative; displays unusual ingenuity.

Use of Facts (check ✓)

1 .... Group accepts as truth whatever is said.

2 .... Group rarely presents or demands any sort of supporting evidence.

3 ...✓ Group generally seeks the facts of the situation.

4 .✓.. Group regularly seeks evidence and can judge how reliable and pertinent data is.

5 .... Group consistently bases conclusions on all facts properly evaluated.

Group Cooperative Judgment Level (check ✓)

1 .... Group jumps to conclusion or lets guide do most of the thinking.
2 .... Some cooperative thinking in considering alternate solutions but group gets tangled up in pet ideas or prejudices of a few.
3 .... Usually makes reasonable choice among obvious alternatives.
4 .✓.. Group critically examines most possibilities but not yet an orderly process.
5 .... Group reaches final solutions after careful analysis of all data and everyone's ideas. Good pooling of ideas and orderly thought.

Method of Resolving Disagreements (check ✓)

1 .... Group waits for guide to resolve disagreement.
2 .... Group follows lead of one of its own leaders.
3 .... Strongest sub-group dominates the outcome of the decision.
4 .✓.. Compromises are effected by each sub-group giving up something.
5 .... Group as a whole arrives at a solution that satisfies all children and that is better than any single suggestion.

Teacher Involvement (check ✓)

1 .✓.. No teacher.
2 .... Very passive. Follows group and collects strays but negligible input into field trip.
3 .... Follows guide's lead; contributes to activities when guide requests or when she (he) is obviously needed.
4 .... Quick to contribute to activities and initiates some things on her own.
5 .... Attempts to dominate the field trip.

Teacher Discipline Style (check ✓)

1 .... Laissez-faire, children have complete freedom.
2 ....
3 .... Friendly, accepting, reasonable, strict when necessary.
4 ....
5 .... Noisy, dominant, rigid authoritarian.

Class Preparation (check ✓)

1 .... Special preparation for field trip.
2 ....
3 .✓.. Preparation from normal class work.
4 ....
5 .... No preparation.

Information Content (check ✓)

Object	Mentioned	Discussed	Observed	Observed Commented	Observed Discussed	Observed Discussed in depth or Repeatedly
Birds	....	....	....	✓	....	....
Bird Signs	....	....	....	....	....	✓
Forest	....	....	....	....	✓	....
Insects	....	....	....	....	....	✓
Insect Signs	....	....	....	....	✓	....
Mammals	....	....	....	✓	....	....
Mammal Signs	....	....	....	....	....	✓
Microorganisms	....	....	....	....	✓	....
People	....	....	....	✓	....	....
People Signs	....	....	....	....	....	✓
Plants	....	....	....	....	....	✓
Pond	....	....	....	✓	....	....
Reptiles	....	....	....	....	....	✓
Reptile Signs	....	....	....	....	....	....
Soil	....	....	....	....	✓	....
Trees	....	....	....	....	....	✓
Weather	....	....	....	....	✓	....

P	R	S	Acceptance of Norms (number of children)
a)	....	....	Reasons are warm heartedly accepted and supported
b) 10	17	15	Reasons are accepted
c) 5	3	5	Reasons have to be repeated before they are accepted
d) 1	....	....	Group pressure as well as reasons are required
e) 2	....	....	Rules have to be laid down
f)	....	....	Rewards and/or punishment (or threat of) have to be used
g)	....	....	All the above fail

COMMENTS

GUIDE 1 FIELD TRIP 2

Discussions with the Children

The children are very hard to get started on a discussion, they scattered quickly. The only possible type of discussion were the ones initiated by my questions. The children's attention span isn't long. So what I said had to be short and sweet. In a situation such as this one it's better to let the children do what they want to and occasionally they might ask you a question and you have to give an answer really quickly because they won't wait for very long. Example: What made the holes in the trees? Are there roses in the forest?

Children's Interaction with the Forest

They were very happy just running around in the forest, just scattering, picking up branches and hitting trees, slicing leaves. They enjoyed the trip just for the fact of being outside in wide open spaces. The guide wasn't a necessity for the children. I was only there to offer an occasional comment. I was there mostly to show them the way around the forest.

So, all in all they were quite content with running and screaming all around the bush.

Guide's Task

I was there to show them the way around, to solve disputes and to be able to answer their questions. Discipline the children. Make sure they all came back in one piece without massacring the forest environment.

I had to try to make them understand what the forest is good for and how important it is.

GUIDE 2 FIELD TRIP 2

Discussions with the Children

This was quite hard as the children seemed more interested in running around in the forest rather than discussing things with the guide. The fact of being in an open area and then having the opportunity to run around was enough for them. A group like this one should come more than once here so that slowly they can get used to the forest and after a while they would be more interested in learning specific things about the forest.

The discussions we had were very brief. Not too much depth in them as their ability to concentrate, their attention span was very limited. I had to ask a lot of questions and answer a lot myself as they didn't know much about the forest. Therefore I didn't tell them everything I could have about the forest, hoping that if I kept it simple and limited they would remember some things, rather than giving them a whole bunch of new things and it being "Chinese" to them.

For example, we went by the insect trap and there were a few bees in there. I asked them what good were insects in a forest and they all seemed to think that insects shouldn't exist in a forest. So we talked about how buds opened, and leaves and flowers, and that bees gave us honey, etc., and then all was "O.K." I started off the discussion with about 10 children and ended up with about 3. The others were busy running around. Most of the discussions were done with very small groups.

The Children's Interaction with the Forest

These children were not on the outlook to find special trees or animals or to find out what animals did around them or anything like this. They enjoyed walking but especially running! They enjoyed picking up dead

branches and hitting trees and leaves with it, kicking stumps, climbing trees, getting wet in the pond.

They enjoyed catching frogs and would have just loved to take them home with them. Some of them tried the frog in the pocket trick! I had to explain many times the reasons why we should leave things in the forest and why we shouldn't break things.

These children were enjoying themselves but weren't interested in what the other guy next to him was interested in. They really enjoyed the walking around more than learning about the life of the forest.

GUIDE 3 FIELD TRIP 2

My Discussion with the Children

Avec un groupe comme celui-là, la discussion est plutôt limitée, les enfants sont très intéressés par la forêt, mais pas par le guide, le nombre de "forest interaction" et de "guide interaction" le prouve. Ces enfants n'avaient que très peu de capacité de discussion ou étaient peut-être trop occupés à courir "65% expressive physical activity" à voir la forêt pour discuter de quoique ce soit. On peut voir que tout ce qui a été discuté touche ce qui vit dans la forêt; les "reptiles", les "insects", les arbres. Ces enfants qui en étaient sans doute à leur première expérience dans la forêt, avaient comme premier but d'attraper des "frogs and snakes".

Je crois qu'il n'y a pas eu vraiment de discussions mais plutôt des commentaires du guide - qui étaient plus ou moins écoutés. Les "bird signs", "people signs", les arbres ont été commentés mais les enfants ne voulaient pas savoir "pourquoi ou comment" ils avaient été faits, les voir suffisait.

Je suppose que le "pre test and post test" ont été assez difficiles à fair comme toute autre discussion dans la forêt. Ces enfants n'avaient

sans doute jamais été dans la forêt et discuter leur semblait sans doute une perte de temps.

The Children's Interaction with the Forest

Pour ces enfants, la forêt représentait quelque chose de nouveau et la forêt les attirait beaucoup. Si l'analyse et la discussion n'ont été que très superficielles, les enfants ont été complètement emballés par la forêt elle-même, et surtout par les animaux. Le guide n'était en fait qu'une aide pour indiquer le chemin, faire quelques commentaires. Si les enfants étaient "completely involved in activities in the forest", leur intérêt était fixé sur des points bien précis: attraper des grenouilles, des couleuvres, tuer des maringouins (s'il y avait...). C'est d'ailleurs ce qui a été la cause de certains "protection" par exemple, le guide a du dire aux enfants de mettre de l'eau dans leurs mains s'ils attrapaient des têtards, de remettre les grenouilles après les avoir observer.

En fait, même s'il n'y avait que peu de variété dans les activités, même si les enfants n'étaient pas intéressés a discuter, à analyser, l'excursion semble avoir été très intéressante, même si elle n'avait été qu'une occasion de courir dans la forêt, de grimper dans les arbres et attraper des grenouilles, elle leur a permis de faire connaissance avec la forêt.

What I as a Guide Did on the Field Trip

Durant cette excursion, le guide était vraiment moins important que la forêt, puisqu'avant de comprendre quelque chose, il faut le connaître. Le rôle du guide a donc été avant tout d'aider les enfants à mieux connaître la forêt sans l'en dommager (protection and enjoyment) et ceci en tenant compte de la sécurité de chacun. Par exemple, le guide a du répéter de ne

pas aller trop loin, de faire attention aux branches, etc. Quoi qu'il en soit, la présence du guide s'avère indispensable, pour modérer un peu l'élan des enfants lorsqu'il était trop grand et pour essayer de stimuler leur intérêt pour quelques phénomènes, qu'ils soient superficielles ou non.

GUIDE 4 FIELD TRIP 2

Discussions with the Children

The discussions were very few, the children wanted to run along, they were happy with just running or walking along the roads. They did not want to learn about the things in the forest. If we saw anything they all said they wanted to take it home or kill it. They thought it was funny. One child would say something smart just so the other children would laugh at him.

They saw the sugar house - but only a few stayed and discussed the process and how sap is come by and what is done with it.

When we saw the trees, I would have to call them and try to get them to say the names of the trees - only to see a few seconds later they didn't remember it.

When we saw the insect traps they looked at the insects, then ran on, only a few stayed for the discussion of what the traps are for and why the plates are painted yellow.

If we saw any squirrels or chipmunks they looked at them and ran after them. They cared for nothing really. They looked and then went on. We, the few left, would discuss the difference between a squirrel and a chipmunk, also what they eat, etc.

The discussions are not many or very deep as the children are not interested in learning. Their attention span is very small. Only a few

are interested in the names of things.

Children's Interaction with the Forest

The children ran along, kicking old stumps, probably hitting trees and kicking leaves. They see things, look at them and then run along. They probably climb trees, when we get to the sugar camp they try to open the door, climb up on the pan.

At the quarry they climb the sides, run and catch tadpoles, yelling and screaming. They are not careful of how they handle the tadpoles or just put them back into the water, e.g., throw them in.

A few of the children will ask what the plants are. They also will point things out and ask me what they are.

They will run and look for holes in the trees where animals live. Also they will try and run after the animals after they see them. They do not really take into consideration that if they yell all the time they will see nothing. They take sticks and hit stones, etc.

I would try and get them interested in the forest, try to keep them together.

Every time they damaged the forest I would discipline them. If they pick flowers I would try to get the other children to tell them why they do not pick flowers.

When they were running ahead I would have to yell at them to be careful, not to get lost, or walk in poison ivy. When they were climbing trees in the quarry I would have to tell them to be careful.

Guide's Task

My main task was to try to get them interested, telling them the different types of trees (very few) - they would probably be interested in pond life so we would spend more time there. Also I would spend a

great part of my time disciplining them.

I would try and get them to point things out and apply or relate them to things they might be interested in, e.g., ferns - refer to Tarzan movies and the large ferns there are in the movies. Going into the turtle pond I would get them to look at the horse shoe tracks and tell me what they were.

I would ask questions and probably ask one particular child the answer, trying to get everyone involved.

GUIDE 5 FIELD TRIP 2

Discussions with the Children

In groups like this, the children are not interested in discussions. The guide has to start all the discussions, and it is usually impossible to keep the children's attention. They may do some discussing at the insect traps while they look at bugs or they may discuss frogs and toads or tadpoles when we find some. When I ask the kids questions, they usually ignore them, stare blankly or leave. I usually have to tell them things quickly, rather than trying to get them to figure things out. Suggestions or answers they give me are usually very simple and often obviously wrong (e.g., birds or turtles make holes in leaves). They often don't know what tadpoles are, they call them fish. When I explain what tadpoles are, they call salamanders tadpoles too. They might call salamanders baby crocodiles. When they compare things they might call a tunnel in a log the Lafontaine Tunnel, or they say a hole that goes up a tree goes up to the fourth floor. They would call firs and spruces Christmas trees, and call pine cones pineapples. If they see dandelions or flies they might say they have those at home too. They sometimes ask what the name of something is but don't

ask many other questions. They often comment on how big the trees are, or say they like being in the forest, but they don't really want to learn facts about things. Sometimes when I tell them something (like tadpoles turn into frogs) they look pleased and interested, but they don't have th patience to answer questions and figure things out themselves.

Children's Interaction with the Forest

The children are very wild and excited, they run, scream and shout a lot. They might show off by climbing trees and lifting heavy things. When they see animals, they run after them and often try to catch them. At the pond, they may hold salamanders tightly between their fingers, they grab frogs and hold them tightly. They may fight over who uses the net, or who gets to hold the frogs. At the quarry they climb the sides and jump off the rocks. At the fallen beech tree they climb up, jump off, and sometimes use one of the small trees as a pole to slide down like firemen. Some of the children may be afraid to hold tadpoles and toads. If I give them one, they often say it tickles and drop it. They often talk to each other about things they find, more than to me, maybe because they are afraid I will try to get them to discuss them.

Guide's Task

Since the children don't need to be prodded to get involved, and aren't interested in discussing, most of the guide's time is spent trying to keep them from getting lost, hurting themselves or animals, or wrecking everything. The guide has to call them back, get them out of trees that are too high, get them to be careful around the edge of the quarry, and often stop them from hitting with sticks or throwing rocks around. It's very hard to get them to understand why they can't take things home and

with some it's impossible. Some won't stop breaking things or pulling off leaves unless you scream at them or tell them they won't get a tree. The guide also has to get them to try to remember something or at least to learn to appreciate things a little more, and be a little more careful with animals and things (especially if a teacher is around because they always want the children to learn something they can tell her afterwards). Usually some of them remember some things and they all enjoy themselves.

GUIDE 6 FIELD TRIP 2

Discussions with the Children

These children had probably never been in a forest before, and were so excited that they just weren't ready to listen to me. They spent most of their time running through the woods. Most of the discussions are one question affairs or drag out the answers before they run off. The children gave neither imaginative answers or long answers. The children gave quick "off the top of the head" answers and then run off - all except two or three which tag along holding my hand and trying to answer some of the questions.

Example: Guide: What's this on the tree?

Child: A mark.

Guide: Will it hurt the tree?

Guide looks around. Two blank faces look up at me. The rest are gone.

Another example: Guide: "Look at the flowers. Do you know what kind it is?" No answer.

Guide: How many leaves does it have?

Child: Three.

Guide has to leave questioning to explain to children why they don't take

sticks and hit flowers with them.

Most discussions were given in a raised voice.

Children's Interaction with the Forest

These children spend most of their time running through the woods, climbing all over the quarry, waving sticks, perhaps through the frogs, and putting tadpoles in their pockets - generally causing a riot. One child would yell "Let's go!" and off they'd go. One boy would find a stick and start swinging and the others would follow.

Those that didn't take part in this would just walk along and just gaze around and not attempt to explore further.

Most of the active observation would be at the pond, catching and looking at frogs and tadpoles. However, even here certain activities would include splashing into the water over tops of boots, scaring some of the girls with frogs, touching poison ivy (after being told not to).

Guide's Functions

Most of the time with this group is spent calling (yelling) the group back and counting heads.

A lot of the time would be spent trying to get the children to really think about the forest and solve the problems as a group with little success.

Time would also have to be spent explaining to the children why they can't pick the flowers or mark the trees; e.g., one little brat was caught with a pen knife carving a tree. Hence the punishment - back to the bus!!!

Arriving back at the parking lot the children would be as energetic as ever while I would drag myself over to the pictures, looking only slightly less disheveled than I felt, open my mouth for one last call to look at the pictures and no doubt only a squawk would utter forth.

GUIDE 7 FIELD TRIP 2

Discussions with the Children

There was a rather limited amount of discussion with this group. They were not interested in stopping to talk and discuss the different forest components. Most of my time, talking to the group, was taken up by stopping different undesirable actions and explaining why one does not do "things like that" to the forest. This group had limited previous knowledge of the forest and therefore abused it (the forest) by taking things, removing leaves, flowers, sticking sticks in animal homes and hurting (unintentionally) the frogs, toads we did find. This was a problem, that was dealt with by continuous explanation and discussion.

There were no problem-solving discussions that met even any success. The only time the group did actually comment on something was at the turtle pond, when after a lot of prodding by me, it was decided that the turtle would not come out unless we were quiet and still. Guide: If you were a little turtle, would you come out if there were a lot of big children standing around making a lot of noise?, etc. The only relatively successful talks I had were with a small group of children (2 - 4) who were a bit curious. They asked and answered very basic questions about the trees, insects we saw, and pond life. They wanted to know why the insect traps were there, why that tree was marked red, what the sticky stuff (gum) was on the tree? Aside from this small group all the other children had no interest to stop and ask questions or listen to the answers. They felt the forest was to play in, not talk about.

Children's Interaction with the Forest

The main activity in the forest was "expressive physical activity".

There was a large group always ahead, away from the group, playing with sticks, leaves, etc. They never seemed to be able to stand still in the forest. They were always moving about, even though they were not able to observe different things in all their movement and the area they covered. Most of them didn't notice cones on the ground, squirrels moving about in trees, birds on road ahead, horse tracks on the ground, etc. Only a few times did the more conscientious one or two in the group notice these things. Aside from this physically active group there was also a much smaller group who just walked along and looked. To them the forest just seemed to be "something to look at but don't touch". They stayed close to me or lagged close behind most of the time but showed no real interest in the forest.

This group interacted with the forest environment; it was definitely not intellectually stimulating. To them the forest seemed to be a place to run or just look at, not to learn by.

Guide's Task

My function as the guide was basically authoritarian, in that I seemed to spend most of my time telling them what not to do. I had the basic problem of trying to control the group in their actions. The leader was definitely no help. This group tended to be rather wild and keeping them together on the same trail was a major problem. Their listening to me was also a problem. They just did not want to stay together, learn anything or do anything constructive.

I had to deal with certain children who insisted on keeping the toad or the ones who would not keep the tadpoles in water even though they enjoyed holding them. The children just would not listen. Most of my time was spent trying to make the children realize the forest environment was

something we didn't want to hurt but enjoy, so why didn't they try to stay together, not hurt or break anything and stop complaining about the heat, mosquitoes and lunch, and then maybe they would see animals.

GUIDE 8 FIELD TRIP 2

Discussions with the Children

The group interacted with the guide mainly in groups of 2 - 4 children. The children had no drive and probably had to be told most of the information. The questioning method probably got very little information. The majority of the children probably knew a maple tree but were uninterested in pursuing the process. The guide has to initiate the discussions as there is little active observation. The group tried to get out of questioning and answering so most discussions never got off the ground. The discussions consisted of general words and contained brief descriptions of names only of forest objects.

When asked how the window insect trap works the children might not make an attempt to answer or might give only one solution.

The guide also discussed feelings with the children. These probably included some negative feelings about the forest.

Children's Interaction with the Forest

The children engaged in a lot of expressive physical activity. This probably included running through the forest, climbing trees, and hiding. The majority of the group initiated its own activities. There were many leaders within the group. When asked to stay with the group the children would express their individual desires. They dispersed in the forest individually and mainly in groups of 2 - 4. At the pond they interacted in groups of 5 - 10. When a disagreement at the pond developed over the nets

a group leader took the net.

Guide Tasks

The guide spent a good deal of the time concerned in group functions. This would involve keeping the members from getting lost, from destroying the forest, from fighting. The guide was also involved with giving information to the few children who stayed with the guide and were attentive. Some individual functions such as discipline and social interactions were also done by the guide.

GUIDE 9 FIELD TRIP 2

Discussions with the Children

The children were definitely not interested in me or what I had to say. I was lucky if I managed to say "Look at the chipmunk". The insect traps on Beech trail interested them long enough for me to tell them that an insect has six legs and that a spider has eight. The carvings on the tree were pointed out by a child on the run. The turtle pond and the ditch interested them, amazingly enough. The turtle came out despite the noise. We discussed the fact that the turtle has his house on his back; we also caught tadpoles and frogs and I managed to explain to a small group the difference between the two. The question method is, for practical purposes, a failure for this group - they will not stay around long enough to either get the answers out of them or to give them the answers after they have failed to come up with the answer. I therefore resorted to giving the information directly. Feelings are discussed frequently as a result of a comment from them which I capitalize on, e.g., "Yuk, it's all muddy in here" or "Wow, it's cooler in here".

Children's Interaction with the Forest

The group, which has never been in the forest before, is large and highly excitable. Their main interest is in running. By the time that myself, the teacher and the three children with me have rounded the corner of Stonycroft Road, the rest of the group has already reached the demonstration sugar house. The teacher made no attempt to call them back. It quickly became apparent that there were two ring leaders in the group who set the pace. Although the group ran ahead, they generally waited at the intersections and therefore didn't require a great deal of safety discipline. While they waited they either climbed trees, rocks, etc., or just sat passively. They did not actively look for things. At the quarry they had a great time climbing and falling (almost). They showed no fear of the height or steepness. In the maple bush their expressive activity became a bit too expressive - kicking stumps apart and banging on trees. Three children continued in the activities despite repeated reasoning. Attempts to involve the children in looking for things failed.

What the Guide Did on the Field Trip

Repeated attempts to interest the children in looking for things failed. Attempts to call them back to come and see the "neat flowers" may have succeeded in slowing them down but didn't get them to look for other things. A lot of time was spent dealing with the two speed fiends who finally had to be controlled by being made to hold my hand. Several children wanted to take things home and had to have things explained again. Three children were particularly destructive - squeezed frogs and toads and kept the tadpoles out of the water, even after being told. I threatened one with my anger. Task functions were pretty well as described in question one. They (the discussions) were held at a maximum of five children, and

were nearly always initiated by me. Pointed out the rotting stumps but could not get the information out by questions, and did not go into depth. Probably asked "Is this changing or staying the same?", and then proceeded to tell them it was changing into soil.

GUIDE 10 FIELD TRIP 2

Discussions with the Children

It was obvious that from the pre-tour talk the children were either shy to speak to me or they knew very little about the forest. The stories and opinions varied and there was some controversy.

They were very keen to experience and find out what the forest was all about for themselves.

Discussions were limited. Most of my communications were yelled to try and keep the group together. There were very few times when I had the whole group's attention at one time.

When we did discuss the forest components it was a questioning approach. It took a lot of prodding to get any kind of an answer.

What discussions there were, were brought about by feelings. They would ask about how thirsty they were or how hot they were. Other questions they asked were not so much about the things they were seeing but more about the time of day or how many miles they were going.

It was necessary that I start the learning discussions since they were chiefly interested in running and playing.

Since the group was divided any information given out was usually to a small group of those who were interested in that particular topic.

Forest Interactions

The children were primarily interested in getting into the forest. They did not see it as a place to learn but rather as a glorified back yard. They spontaneously interacted with the forest by expressing themselves physically.

The group did not seem united but rather to be made up of sub-groups of about 2 - 4 people "doing their own thing".

The groups tended to rush by things hardly noticing and active observation was scattered. They were completely involved in their own activities and it was obvious that they enjoyed the experience.

There was a lot of attention getting which showed that there was considerable adjustment. They were indifferent toward me but the attention getting showed that it was a new experience and they wanted someone to "look at me" in their new environment.

Generally the conservation norms were accepted and only a few of the children needed to be pressured into obeying.

They did not shy away from any of the forest creatures which indicated that they were not afraid.

Guide's Tasks

For these children the easiest way to handle them was to let them express themselves and explore the forest. To have pressured them into learning would have done no good and would have probably turned them against the forest.

The teacher seemed also to accept the fact that these children had to play and so she stayed with me and talked.

There were two children who showed me that they wanted to learn and they became quite intimate. They stayed with the teacher and myself and

learned a great deal. They had no knowledge and so those who listened drew on their everyday knowledge. They tried to understand but their lack of knowledge could not help them to predict any answers.

The children would bring very few things to me but it was obvious that they were finding things from their shouts to the teacher and myself.

SUBSTITUTE 1 FIELD TRIP 2

Discussions with the Children

This group is one in which verbal communication is very difficult. As seen from the pre-test they do not know much about the forest environment or the way to preserve it. They are very excited about the forest and what they see in it, but they do not really want to learn about it. Discussions with the guide are really not sought, she is to them an obstacle in their search. Group does not ask many questions, therefore the guide must question them in order to get their interest in the functions or names of the various things they explore. When the guide does not get their attention, explanations must be brief or children start wandering away and do not ask questions further. Complicated words cannot be used, for the children are not interested in remembering them anyway. A few of the children do want to learn but are held back by the others. Guide is only able to make a few comments on the things the children find in the forest. There is no depth in the discussions as the problems are not discussed fully.

The Children's Interaction with the Forest

Children are very much involved with the forest environment, but only physically. They are not curious when it comes to naming unknown plants, animal and forest processes. They are eager to catch frogs, toads, snakes, turtles, birds, insects and other animals but indifferent to the way they

build their homes, what they eat or how they survive. Individuals or subgroups within the group do not take into account the interests of the whole group, but their own interests. Group is disorganized and guide must attempt to make them work together as much as possible. Success is limited, for every child goes in his own direction in search for something new. There is competition among the children. For example, one child may want to catch all the animals that the group sees in order to showhis superiority to the others. Children complain about not seeing animals they saw in the pre-test pictures and expect me to lead them immediately to a place where small animals are found. Children because of their lack of knowledge do not really know what to look for in the forest. They may see the same thing several times (mushrooms on a tree stump) and keep looking for more. They may interrupt discussions on a new subject when they spot something they have seen repeatedly. Nevertheless, their knowledge is enriched on the great variety of plants and animals that are found in the forest. Unfortunately, because of their excitement, the children's knowledge of the forest processes is not developed to its full capacity.

Guide's Task

This type of group is a challenge to the guide. She must attempt to overtake the group and to get them to accept her and to trust what she says to them about the various things in the forest and that they are true and important. Part of her task is to get the children's feelings worked up so they become interested in what they see and to make them aware of possibilities offered them. In doing this, the children want to learn more, and if not all of them, some are usually overcome by the guide and start asking questions about what they see. Once the children start to communicate, a guide tries to introduce some problems and get the children to participate.

This does not work unless the guide makes them see the importance of what she is saying. She may have to exaggerate the situation to get their interest.

The main function of the guide in this field trip is to get the children to work together as a group and also to stay together as a group. Because of their conflicting interests they are often dispersed and the guide must call them back. Discipline is a major problem.

FIELD TRIP 2 DATA

BEFORE QUIZ DATA

			B	A	G			F.T.	2
	1	2	3	4	5	6	7	8	9
L	1	5	2	4	0	2	1	1	1
D	4	1	3	4	0	3	0	1	1
N	∴	∴	P	8 [1]	8 [2]	1 [3]		BOYS	8
P	∴		E	7 [1]	2 [2]	7 [3]		GIRLS	9
A	∴	∴	S	6 [1]	5 [2]	6 [3]		TOTAL	17

INTERACTION AND DISCIPLINE DATA

			C	TOTAL	17	G			F.T.	2
	G	F	S		G	F	S	P	R	S
1	5	12	0	11	0	17	0	∴	∴	
2	2	15	0	12	2	15	0			
3	0	17	0	13						
4	2	15	0	14						
5	3	14	0	15						
6	0	17	0	16						
7	0	17	0	17						
8	4	13	0	18						
9	1	16	0	19						
10	3	14	0	20						

Trail 5
Grade 2

THE FIELD TRIP REPORT FORM

Field Trip Report

Guide Interaction Content (% based on occurrence)

a) .40 feelings
b) .60 problem solving

Forest Interaction Content (% based on occurrence)

a) .25 passive observation
b) .10 active observation
c) .65 expressive physical activity
d) .... role playing

Social Interaction Content (% based on occurrence)

a) .0. athletic games
b) .0. private conversations
c) .0. social games, role playing

	G.I.	F.I.	S.I.	Interaction Sub Grouping (% based on occurrence)
a)	.10	.20	.0.	1
b)	.85	.50	....	2 - 4
c)	.5.	.30	....	5 - 10
d)	....	....	....	more than 10

	G.I.	F.I.	Self Direction (check ✓)
1	.✓.	....	No drive. Guide has to dominate.
2	....	....	Group has some self propulsion, but needs considerable push.
3	....	....	Domination from a strong single member or clique.
4	....	....	With a little prodding, group initiates and does activities.
5	....	.✓.	Group spontaneously initiates and does activities.

			Distribution of Leadership (check ✓)
1	.✓..	....	Guide does all the leading.
2	....	....	A few members always take leader roles. Rest are passive.
3	....	....	Some members take leader roles. Rest are passive.
4	....	.✓.	Many members take leadership but one or two continually following.
5	....	....	Leadership is shared by all members of group.

			Variety of Activities (check ✓)
1	.✓.	.✓.	Little variety in activities, stick to the same things.
2	....	....	Some variety in activities.
3	....	....	Considerable variety in activities. Try out new activities.
4	....	....	Great variety in activities. Continually trying out new ones.

	G.I.	F.I.	Activity Origins (check ✓)
1	.✓..	....	Activities depend on the requests of the guide. Guide has to start and direct activities.
2	....	....	Group looks to guide for suggestions and ideas for activities. Group is interested but waits for guide to indicate and sometimes initiate activities.
3	....	....	By encouragement and making suggestions guide can stimulate group to choose and initiate its activities.
4	....	..✓.	Group initiates and does activities on its own. Guide just offers occasional comments and information.

			Depth of Activities (check ✓)
1	....	....	Children are just spectators, don't get involved at all.
2	.✓..	....	Little depth in activities, just scratching the surface, just going through the motions.
3	....	....	Some depth but children not increasing their skills.
4	....	.✓..	Considerable depth in activities. Children able to utilize some of their ability.
5	....	....	Great depth in activities. Children find each a challenge to develop their abilities. Totally immersed in activities.

			Adjustment Type (% based on occurrence)
a)	....	....	fight
b)	....	....	flight
c)	100	100	attention getting

			Adjustment Amount (check ✓)
1	....	....	No adjustment or very little.
2	.✓..	....	
3	....	....	Some adjustment but does not hinder activities.
4	....	.✓..	
5	....	....	A lot of adjustment that does hinder activities.

		Group Climate (check ✓)
1	....	Climate inhibits good fun, behavior and expression of desires, fears, and opinions.
2	.✓..	Children express their individual needs and wants but nothing about the group's interests.
3	....	Children freely express their needs and desires but joke, argue and complain about the rest of the group's interests to the detriment of the group.
4	....	Children feel free to express their feelings and desires. They accept the rest of the group's interests and the importance of what the group as a whole wants.

		Distribution of Discussion Interaction (check ✓)
1	.✓..	Everyone tried to get out of questioning and answering.
2	....	Questioning and answering done by a few children.
3	....	Many children do some questioning and answering.
4	....	Questioning and answering are done by nearly all children.

Group Energy (number of children)

a) .15. Hyperactive and extremely noisy, excessive screaming, running and scattering. Communications are yelled and repeated with limited success.

b) .... Active, noisy, quick to disperse and interact with the forest - normally will listen to communications.

c) .2. Respond quietly and orderly to communications and the forest.

d) .... Withdrawn, very quiet, very passive - negligible response to communications and forest.

Guide - Child Rapport (number of children)

a) .... Antagonistic or resentful.

b) .14. Indifferent toward guide; friendship neither sought nor rejected, non-communicative.

c) .1.. Friendly and interested. Attentive to guide's suggestions and behavior.

d) .2.. Intimate relations: openess and sharing, strong rapport.

Guide Functions (% based on occurrence)

a) .30. Task

b) .50. Group

c) .20 Individual

Group Interaction Direction (% based on occurrence)

a) .10. Forest then guide.

Forest - experience Outlook (number of children)

a) .... Antagonistic, unhappy, upset, or turned off.

b) .... Indifferent, blasé, little involvement with forest.

c) .2. Interested, happy, enthusiastic, willing to do things in the forest and learn about it.

d) .15. Ecstatic or awed, express strong favourable feelings about forest experiences, not particularly interested in learning about forest.

Relating Observations and Information (% based on occurrence)

a) .... Relate to the structure and functioning of the human body, family or home.

b) 100 Relate to general knowledge gained from everyday experiences.

c) .... Relate to previous outdoor experiences with family or friends.

d) .... Relate to previous knowledge from books or class room.

Describing Observations and Information (check ✓)

1 .✓.. Use very general nouns, verbs and adjectives to describe.

2 .... Use simple specific words to describe things and parts of things.

3 .... Use proper nouns and some complicated words. Words have narrow meanings and are well modified.

4 .... Can use scientific words that are not part of everyday language. They may require a definition and be fairly abstract.

Information Classification (% based on occurrence)

a) 80 Names or descriptions of forest objects or their parts.
b) 20 Processes or actions which forest objects do or which happen to them.
c) .... Abstractions giving explanations, reasons or predictions about processes or characteristics.

Group Use of Concepts (check ✓)

1 .✓.. Group may repeat information right after it is given or imitate an action but does not pursue concepts much further than that.
2 .... Group recognizes, remembers and recalls concepts previously mentioned.
3 .... Group not only remembers concepts but compares them and reinterprets them in the light of new information and experiences.
4 .... Group is primarily interested in concepts to explain, predict, justify observations and abstractions.
5 .... Group discovers concepts on its own. Creates worthwhile explanations and analysis of situations.

Recognition of Problems (check ✓)

1 .✓.. Group rarely notices any sort of problem.
2 .... Group identifies only superficial problems.
3 .... Group notices obvious problems, overlooks subtle ones.
4 .... Group has a questioning attitude and is intelligently curious.
5 .... Group has penetrating insight and consistently identifies problems.

Concern for Problems (check ✓)

1 .✓.. Group has no capacity for a sustained attack on most problems.
2 .... Group does not discuss problems clearly; wanders, introduces irrelevant ideas.
3 .... Group will discuss problems and come up with a solution for the typical problem.
4 .... Group is persevering and is reluctant to leave a problem without completing it.
5 .... Group is unusually persistent in all problem solving efforts.

Flexibility with Problems (check ✓)

1 .✓.. Group abandons problem after one attempt to solve.
2 .... Group relies on steady plodding, shows little ingenuity.
3 .... Group shows some resourcefulness.
4 .... Group has only occasional trouble suggesting new, effective ways to attack problems.
5 .... Group is highly imaginative; displays unusual ingenuity.

Use of Facts (check ✓)

1 .... Group accepts as truth whatever is said.
2 .✓.. Group rarely presents or demands any sort of supporting evidence.
3 .... Group generally seeks the facts of the situation.
4 .... Group regularly seeks evidence and can judge how reliable and pertinent data is.
5 .... Group consistently bases conclusions on all facts properly evaluated.

Group Cooperative Judgment Level (check ✓)

1 .✓.. Group jumps to conclusion or lets guide do most of the thinking.
2 .... Some cooperative thinking in considering alternate solutions but group gets tangled up in pet ideas or prejudices of a few.
3 .... Usually makes reasonable choice among obvious alternatives.
4 .... Group critically examines most possibilities but not yet an orderly process.
5 .... Group reaches final solutions after careful analysis of all data and everyone's ideas. Good pooling of ideas and orderly thought.

Method of Resolving Disagreements (check ✓)

1 ...✓ Group waits for guide to resolve disagreement.
2 .✓.. Group follows lead of one of its own leaders.
3 .... Strongest sub-group dominates the outcome of the decision.
4 .... Compromises are effected by each sub-group giving up something.
5 .... Group as a whole arrives at a solution that satisfies all children and that is better than any single suggestion.

Teacher Involvement (check ✓)

1 ...✓ No teacher.
2 .✓.. Very passive. Follows group and collects strays but negligible input into field trip.
3 .... Follows guide's lead; contributes to activities when guide requests or when she (he) is obviously needed.
4 .... Quick to contribute to activities and initiates some things on her own.
5 .... Attempts to dominate the field trip.

Teacher Discipline Style (check ✓)

1 .✓.. Laissez-faire, children have complete freedom.
2 ....
3 .... Friendly, accepting, reasonable, strict when necessary.
4 ....
5 .... Noisy, dominant, rigid authoritarian.

Class Preparation (check ✓)

1 .... Special preparation for field trip.
2 ....
3 .... Preparation from normal class work.
4 ....
5 .✓.. No preparation.

Information Content (check ✓)

Object	Mentioned	Discussed	Observed	Observed Commented	Observed Discussed	Observed Discussed in depth or Repeatedly
Birds	....	....	✓	....	....	....
Bird Signs	....	....	....	....	....	....
Forest	....	....	....	✓	....	....
Insects	....	....	....	....	✓	....
Insect Signs	....	....	....	....	....	....
Mammals	....	....	....	✓	....	....
Mammal Signs	....	....	....	✓	....	....
Microorganisms	....	....	....	....	....	....
People	....	....	✓	....	....	....
People Signs	....	....	....	✓	....	....
Plants	....	....	....	✓	....	....
Pond	....	....	....	....	✓	....
Reptiles	....	....	....	....	....	✓
Reptile Signs	....	....	....	....	....	....
Soil	....	....	....	....	....	....
Trees	....	....	....	....	✓	....
Weather	✓	....	....	....	....	....

P	R	S	Acceptance of Norms (number of children)
a)	....	15	Reasons are warm heartedly accepted and supported
b) 11	14	....	Reasons are accepted
c) 3	3	....	Reasons have to be repeated before they are accepted
d)	....	....	Group pressure as well as reasons are required
e) 2	....	2	Rules have to be laid down
f) 1	....	....	Rewards and/or punishment (or threat of) have to be used
g)	....	....	All the above fail

COMMENTS

A P P E N D I X 18

ROTATED FACTOR MATRIX

	FACTOR					
	1(8)*	2(1)	3(9)	4(2)	5(10)	6(11)
VARIABLE						
1	-0.05	-0.24	-0.02	-0.10	-0.02	0.07
2	0.03	0.48	-0.06	-0.19	0.01	-0.03
3	0.06	-0.27	0.04	0.29	0.06	0.00
4	0.20	-0.01	-0.18	-0.04	-0.08	0.03
5	0.16	0.10	-0.16	0.02	-0.00	0.01
6	0.10	0.74	-0.03	-0.09	-0.08	0.00
7	0.05	0.53	0.04	0.10	0.02	-0.06
8	0.04	0.73	-0.04	-0.12	-0.06	0.03
9	-0.03	0.53	0.06	0.06	0.02	-0.06
10	0.11	0.75	0.00	-0.10	-0.05	0.01
11	0.08	0.74	-0.05	-0.06	-0.05	0.03
12	0.06	0.45	-0.01	0.12	-0.03	-0.05
13	0.04	0.82	0.00	-0.07	-0.04	0.06
14	0.10	0.63	0.02	-0.08	-0.06	0.04
15	-0.00	-0.06	-0.02	0.12	-0.02	0.01
16	-0.01	0.78	0.01	-0.08	0.04	-0.01
17	0.09	-0.31	0.04	0.46	0.08	-0.07
18	-0.07	-0.28	0.03	-0.11	0.02	0.05
19	0.01	-0.09	-0.03	0.69	0.02	0.00
20	0.01	-0.49	-0.04	0.08	-0.00	-0.07
21	0.18	0.58	-0.06	-0.03	-0.03	0.10
22	-0.08	-0.42	-0.00	0.07	-0.00	-0.03
23	-0.04	0.28	0.00	-0.19	0.00	0.02
24	0.12	0.06	0.00	0.09	-0.02	0.05
25	0.00	0.75	-0.02	0.08	0.00	-0.07
26	0.01	0.81	-0.04	0.00	-0.05	-0.05
27	0.08	0.86	-0.08	-0.02	-0.06	-0.01
28	0.05	0.83	-0.04	-0.03	-0.02	-0.05
29	0.05	0.85	-0.03	-0.02	0.00	-0.03
30	-0.04	0.58	0.04	-0.07	0.04	0.00

* The first number (1) comes from the analysis which numbers the factors according to the amount of variance they account for. Factor 1 describes most of the variance and factor 12 the least. The second number (8) is the one used to name this factor in table 9 and in the text of the thesis.

	FACTOR					
	1(8)	2(1)	3(9)	4(2)	5(10)	6(11)
VARIABLE						
31	-0.05	-0.09	-0.02	0.74	-0.00	-0.02
32	0.00	-0.11	-0.08	0.78	-0.04	0.02
33	-0.05	0.23	-0.02	-0.23	-0.01	-0.01
34	-0.11	0.11	0.04	-0.08	0.01	-0.00
35	0.07	-0.10	-0.08	0.03	-0.00	-0.02
36	0.09	-0.02	0.03	0.13	0.01	0.01
37	-0.02	-0.04	-0.04	0.29	0.11	-0.14
38	0.01	-0.01	0.00	0.41	0.07	-0.02
39	0.05	-0.13	0.06	0.23	0.01	-0.03
40	-0.32	-0.02	0.47	-0.00	0.61	-0.45
41	-0.88	-0.08	-0.02	-0.10	-0.01	0.29
42	0.87	0.10	-0.24	0.10	0.01	-0.21
43	-0.08	-0.09	0.82	-0.03	-0.07	0.27
44	-0.38	-0.02	0.14	-0.01	0.19	-0.84
45	-0.24	-0.04	-0.11	-0.05	-0.14	0.90
46	-0.96	-0.08	0.04	0.01	0.09	-0.14
47	0.90	0.10	0.04	0.00	-0.20	0.16
48	0.83	0.08	-0.17	-0.00	0.00	0.01
49	0.85	0.06	-0.31	-0.01	-0.18	0.09
50	-0.65	-0.08	0.24	0.08	0.45	-0.25
51	-0.67	-0.07	-0.48	0.05	-0.01	0.34
52	0.05	0.02	0.43	0.04	0.16	-0.77
53	-0.40	-0.03	-0.78	-0.02	-0.27	0.23
54	-0.03	-0.04	0.71	-0.04	0.60	-0.17
55	-0.71	-0.10	0.37	0.04	0.44	-0.31
56	-0.60	-0.09	0.07	-0.04	-0.23	0.10
57	0.58	-0.03	0.04	0.03	-0.21	0.06
58	-0.25	-0.04	0.82	-0.10	0.19	-0.33
59	-0.15	-0.12	0.15	0.03	0.91	-0.15
60	0.08	0.07	-0.43	-0.01	-0.84	0.09
61	0.40	-0.02	-0.76	0.03	-0.05	0.29
62	-0.95	-0.04	0.01	-0.01	-0.10	-0.05
63	-0.48	-0.16	-0.22	-0.00	0.65	-0.16
64	-0.63	0.04	0.29	0.05	0.25	0.05
65	0.88	0.00	0.12	-0.05	-0.03	-0.07
66	0.21	0.08	-0.83	0.02	-0.09	0.12
67	-0.41	-0.08	-0.17	0.16	0.50	0.37
%	19.7	34.2	44.4	51.3	55.2	58.3

Cumulative Variance Accounted For

	FACTOR					
	7(3)	8(4)	9(5)	10(12)	11(6)	12(7)
VARIABLE						
1	0.06	-0.73	0.07	0.02	0.05	0.13
2	-0.36	0.20	0.11	0.04	0.09	-0.08
3	0.30	0.50	-0.17	-0.09	-0.18	-0.11
4	0.20	-0.11	-0.01	-0.08	-0.34	-0.04
5	0.05	-0.04	-0.05	-0.03	-0.22	-0.00
6	0.01	0.26	0.02	0.06	-0.17	0.04
7	0.14	0.62	-0.08	0.03	-0.09	-0.08
8	-0.06	0.27	0.05	0.06	-0.04	0.05
9	0.07	0.60	-0.05	-0.03	0.05	-0.06
10	-0.01	0.07	0.05	0.02	-0.06	0.04
11	-0.01	0.27	0.03	0.06	-0.18	0.05
12	0.08	0.66	-0.06	-0.01	-0.13	-0.04
13	0.00	-0.00	0.05	0.06	0.05	-0.09
14	0.13	0.29	-0.22	-0.02	0.00	-0.21
15	0.16	0.11	-0.02	-0.05	-0.17	0.07
16	-0.14	0.09	0.03	0.11	0.03	-0.06
17	0.21	0.34	-0.23	-0.06	-0.15	-0.01
18	-0.01	-0.30	-0.07	0.01	-0.02	0.38
19	0.07	0.00	-0.06	-0.04	-0.02	-0.00
20	0.26	-0.02	-0.16	-0.00	-0.03	0.32
21	0.02	0.41	-0.00	0.08	-0.22	0.07
22	0.01	-0.32	-0.06	-0.04	-0.03	0.71
23	-0.09	0.00	0.81	0.01	0.09	-0.41
24	0.10	0.24	-0.86	0.03	0.01	-0.12
25	0.05	-0.06	-0.03	-0.09	0.24	0.01
26	-0.01	-0.01	-0.01	-0.10	0.15	-0.00
27	-0.07	0.01	0.02	-0.06	0.06	-0.05
28	-0.09	-0.08	0.04	-0.09	0.11	-0.08
29	-0.03	-0.05	0.02	-0.08	0.12	-0.02
30	-0.08	-0.09	-0.04	-0.03	0.06	-0.14
31	0.04	0.05	-0.03	0.04	0.15	-0.00
32	0.03	0.13	-0.04	0.01	-0.14	0.04
33	-0.10	-0.25	0.06	-0.01	0.42	-0.03
34	-0.81	-0.10	0.08	-0.00	0.02	-0.00
35	0.82	0.06	-0.02	0.00	-0.03	-0.01
36	-0.13	-0.09	0.06	-0.00	-0.22	0.09
37	0.03	0.12	-0.15	0.04	-0.44	-0.07
38	-0.04	0.06	0.02	-0.00	-0.32	0.00
39	-0.01	0.18	0.06	0.00	-0.63	0.01
40	-0.01	-0.03	0.03	-0.04	-0.04	0.01

	FACTOR					
	7(3)	8(4)	9(5)	10(12)	11(6)	12(7)
VARIABLE						
41	-0.01	-0.18	-0.08	-0.01	-0.06	-0.10
42	0.03	0.17	0.09	0.02	0.06	0.11
43	0.07	-0.04	-0.08	-0.00	0.13	-0.05
44	0.01	-0.00	-0.01	-0.13	-0.06	-0.03
45	0.03	-0.08	0.02	0.10	0.06	0.02
46	-0.03	-0.02	0.04	0.06	0.06	0.04
47	0.01	0.01	-0.04	0.17	-0.03	-0.04
48	0.06	0.03	-0.04	-0.47	-0.13	-0.03
49	0.07	-0.01	-0.08	0.27	-0.11	-0.09
50	-0.07	0.04	0.02	-0.06	0.10	0.04
51	0.02	-0.01	-0.10	-0.16	-0.00	-0.05
52	-0.05	0.14	0.08	0.27	0.07	0.10
53	0.04	-0.06	-0.10	-0.10	-0.06	-0.08
54	0.02	-0.03	-0.02	-0.07	-0.07	-0.02
55	-0.00	-0.02	-0.00	0.04	0.07	-0.02
56	-0.05	-0.11	-0.05	0.68	0.07	-0.08
57	0.10	-0.13	-0.18	0.26	0.02	-0.27
58	-0.01	-0.02	-0.03	0.13	-0.04	-0.05
59	0.02	0.02	0.01	-0.13	-0.09	0.01
60	0.01	-0.01	-0.04	0.03	0.02	-0.06
61	0.05	-0.00	-0.08	-0.19	-0.11	-0.06
62	-0.05	-0.00	-0.01	-0.02	0.09	0.02
63	0.06	-0.03	-0.14	0.17	-0.10	-0.11
64	0.06	-0.02	0.11	-0.30	0.06	0.00
65	0.04	0.03	-0.10	-0.29	-0.15	-0.07
66	0.04	-0.08	0.04	0.27	-0.05	0.00
67	-0.12	0.12	0.16	0.00	0.24	0.26
%	61.0	63.3	65.3	67.0	68.6	70.2

Cumulative Variance Accounted For

A P P E N D I X 19

ALTERNATIVE FACTOR ANALYSES

ROTATED FACTOR MATRICES

ALTERNATIVE 1

ROTATED FACTOR MATRIX

	FACTOR			
VARIABLE	1	2	3	4
1	-0.48	0.07	0.06	-0.09
2	0.59	0.00	0.04	-0.10
3	-0.10	-0.06	0.10	0.22
4	-0.07	-0.10	0.12	-0.13
5	0.05	-0.05	0.17	0.10
6	0.83	0.05	-0.03	-0.12
7	0.67	-0.02	-0.09	0.09
8	0.82	0.01	-0.00	-0.10
9	0.70	0.07	-0.06	0.08
10	0.79	-0.00	-0.08	-0.07
11	0.79	0.05	-0.01	-0.08
12	0.59	0.01	-0.06	0.09
13	0.81	0.02	-0.00	0.01
14	0.73	-0.05	0.04	0.01
15	0.04	0.08	0.08	0.13
16	0.83	-0.00	-0.03	0.00
17	-0.15	-0.08	-0.03	0.51
18	-0.36	0.06	0.03	-0.14
19	-0.11	-0.01	0.06	0.88
20	-0.43	0.01	0.03	-0.01
21	0.64	-0.07	0.01	-0.02
22	-0.40	0.08	-0.01	-0.03
23	0.25	0.11	-0.08	-0.20
24	0.10	-0.19	0.08	0.27
25	0.76	0.09	-0.06	0.05
26	0.79	0.12	-0.03	-0.03
27	0.85	0.03	0.02	-0.01
28	0.82	0.10	-0.01	-0.07
29	0.84	0.10	0.00	-0.04
30	0.63	0.04	0.00	-0.01
31	-0.05	0.01	0.02	0.85

	FACTOR			
VARIABLE	1	2	3	4
32	-0.06	0.02	0.02	0.83
33	0.22	0.15	-0.02	-0.06
34	0.09	0.08	-0.05	-0.10
35	-0.13	0.05	0.05	0.07
36	0.07	-0.08	0.04	0.10
37	0.04	-0.09	0.04	0.22
38	0.05	-0.04	-0.01	0.60
39	-0.04	-0.20	-0.06	0.02
40	0.04	0.26	-0.31	-0.08
41	0.01	0.45	0.63	-0.14
42	-0.02	-0.35	-0.39	0.14
43	-0.02	-0.57	-0.33	0.08
44	0.05	0.48	-0.67	-0.10
45	-0.05	-0.22	0.89	0.01
46	0.07	0.92	0.07	0.02
47	-0.01	-0.87	-0.17	0.00
48	-0.04	-0.89	0.16	-0.02
49	-0.13	-0.79	0.20	-0.01
50	0.03	0.30	-0.00	-0.03
51	0.05	0.27	0.84	0.06
52	0.07	-0.07	-0.91	-0.05
53	0.05	0.29	0.57	-0.01
54	-0.02	0.04	-0.13	-0.03
55	-0.01	0.52	-0.03	0.01
56	0.06	0.13	0.07	-0.09
57	-0.05	-0.86	-0.00	0.07
58	0.08	-0.14	-0.60	-0.12
59	-0.12	0.19	0.25	-0.03
60	0.02	-0.18	-0.04	0.03
61	-0.08	-0.05	0.66	0.05
62	0.18	0.67	0.21	-0.03
63	-0.14	0.23	0.64	-0.07
64	0.13	0.35	0.07	0.08
65	-0.09	-0.80	-0.24	-0.03
66	-0.08	0.12	0.38	-0.06
67	-0.14	0.34	0.57	0.10
%	18.3	33.6	45.4	53.3

Cumulative Variance Accounted For

ALTERNATIVE 2

ROTATED FACTOR MATRIX

	FACTOR			
VARIABLE	1	2	3	4
1	0.01	-0.04	-0.02	-0.09
2	0.08	-0.27	0.07	-0.16
3	-0.07	0.37	-0.20	0.27
4	0.16	0.01	-0.22	0.11
5	0.11	0.01	-0.11	0.02
6	-0.11	-0.52	0.04	0.02
7	-0.10	-0.36	0.10	0.06
8	-0.14	-0.50	0.02	-0.08
9	-0.24	-0.37	0.00	-0.00
10	-0.07	-0.66	-0.12	-0.01
11	0.05	-0.65	0.00	0.06
12	-0.05	-0.21	0.01	0.02
13	-0.03	-0.84	-0.01	-0.09
14	-0.04	-0.67	-0.11	0.06
15	-0.03	0.05	-0.07	0.11
16	-0.10	-0.72	0.18	-0.23
17	-0.10	0.48	-0.20	0.42
18	0.12	0.11	0.07	-0.02
19	0.06	0.08	-0.03	0.83
20	-0.09	0.50	-0.08	0.13
21	0.11	-0.38	-0.04	-0.05
22	0.00	0.57	-0.03	0.02
23	-0.00	-0.20	0.14	-0.16
24	0.01	-0.13	-0.11	0.13
25	0.06	-0.76	0.04	0.08
26	-0.01	-0.85	0.00	-0.05
27	-0.02	-0.87	-0.04	-0.07
28	-0.04	-0.83	0.00	-0.12
29	-0.05	-0.82	0.03	-0.12
30	0.06	-0.60	0.07	-0.12
31	0.05	0.12	0.10	0.81
32	0.10	0.15	0.04	0.84
33	0.00	-0.32	0.18	-0.43
34	-0.13	-0.06	0.01	-0.01
35	0.12	0.03	-0.08	0.00
36	-0.04	0.12	-0.11	0.06
37	0.06	-0.03	0.03	-0.10
38	-0.01	-0.01	-0.15	0.28
39	-0.09	0.03	-0.24	0.18
40	-0.98	-0.02	0.10	-0.03
41	0.38	0.06	0.89	0.00
42	0.21	-0.06	-0.76	0.03

	FACTOR			
VARIABLE	1	2	3	4
43	-0.56	0.05	-0.15	-0.04
44	-0.91	-0.07	0.28	-0.03
45	0.96	-0.01	-0.05	0.03
46	-0.16	-0.07	0.90	-0.01
47	0.07	0.10	-0.75	0.01
48	0.16	0.03	-0.95	0.00
49	0.47	0.04	-0.85	0.00
50	-0.83	-0.02	0.49	-0.02
51	0.85	0.06	0.42	0.04
52	-0.91	-0.02	0.37	-0.02
53	0.94	-0.00	0.12	0.03
54	-0.79	0.08	-0.27	-0.01
55	-0.69	-0.00	0.66	-0.02
56	-0.14	0.06	0.89	-0.06
57	0.03	0.12	0.08	-0.01
58	-0.93	0.01	0.23	-0.03
59	-0.14	0.13	-0.26	0.03
60	0.46	-0.09	0.42	-0.01
61	0.72	0.13	-0.52	0.03
62	-0.22	-0.03	0.94	-0.01
63	0.19	0.05	0.92	0.01
64	-0.68	-0.13	0.56	-0.03
65	0.05	0.10	-0.91	-0.00
66	0.76	0.01	0.32	0.03
67	0.21	-0.19	0.11	0.02
%	19.9	35.1	48.9	54.8

Cumulative Variance Accounted For

ALTERNATIVE 3

ROTATED FACTOR MATRIX

	FACTOR			
VARIABLE	1	2	3	4
1	0.08	-0.17	0.02	0.30
2	0.17	-0.02	0.15	0.00
3	0.13	0.10	0.06	0.09
4	0.09	0.78	-0.05	0.06
5	0.10	0.77	-0.04	-0.01
6	0.09	0.06	0.03	-0.04
7	-0.03	0.77	-0.07	0.01
8	0.10	-0.22	-0.04	0.32
9	-0.06	-0.26	-0.01	-0.03
10	0.01	-0.40	0.00	-0.00
11	0.15	0.69	-0.01	0.21
12	-0.07	-0.38	-0.00	-0.04
13	-0.03	0.16	-0.03	-0.13
14	0.08	0.16	0.04	0.09
15	0.04	0.77	0.02	-0.21
16	0.04	0.80	0.04	-0.13
17	-0.04	0.58	0.00	-0.10
18	-0.02	0.14	0.06	-0.51
19	-0.10	0.03	-0.04	0.12
20	0.06	0.01	0.00	0.22
21	0.01	-0.03	-0.01	0.67
22	0.03	0.03	0.06	0.67
23	0.06	-0.09	-0.07	0.81
24	-0.86	-0.09	0.36	-0.05
25	0.87	0.10	-0.16	0.05
26	0.93	0.10	0.22	0,04
27	0.88	0.05	0.28	-0.00
28	-0.57	-0.06	0.71	0.01
29	0.00	0.02	-0.87	0.07
30	-0.66	-0.10	-0.32	-0.01
31	-0.81	-0.15	-0.18	-0.08
32	0.42	-0.11	-0.06	-0.18
33	-0.03	-0.11	-0.09	0.09
34	0.03	0.06	0.32	-0.05
35	0.48	-0.04	0.72	0.05
36	-0.42	-0.18	0.11	0.07
37	-0.53	0.09	0.04	-0.04
38	0.90	0.01	-0.10	0.02
%	20.4	35.1	43.9	51.1

Cumulative Variance Accounted For

ALTERNATIVE 4

ROTATED FACTOR MATRIX

	FACTOR						
VARIABLE	1	2	3	4	5	6	7
1	-0.08	-0.10	-0.05	0.79	-0.14	0.06	0.15
2	0.36	-0.13	0.30	-0.37	-0.04	0.19	-0.04
3	-0.34	0.23	-0.23	-0.38	0.18	-0.26	-0.19
4	-0.01	-0.04	-0.20	0.10	0.03	-0.04	-0.12
5	0.07	0.11	-0.00	-0.03	0.05	-0.04	0.05
6	0.65	-0.07	0.05	-0.07	-0.04	0.05	-0.04
7	0.39	0.08	-0.13	-0.72	0.07	-0.12	-0.20
8	0.64	-0.09	0.11	-0.49	-0.10	0.12	0.02
9	0.40	0.06	-0.06	-0.70	0.01	-0.04	-0.12
10	0.72	-0.10	0.02	-0.24	-0.00	0.08	-0.02
11	0.65	-0.05	0.07	-0.47	0.01	0.07	-0.01
12	0.31	0.09	-0.07	-0.76	0.09	-0.10	-0.15
13	0.80	-0.07	0.02	-0.16	-0.08	0.08	-0.15
14	0.57	-0.10	-0.09	-0.38	-0.03	-0.27	-0.29
15	-0.05	0.09	-0.04	-0.09	0.10	0.02	0.10
16	0.75	-0.12	0.17	-0.23	0.04	0.05	-0.11
17	-0.36	0.44	-0.24	-0.23	0.17	-0.34	-0.08
18	-0.18	-0.13	0.05	0.29	0.05	-0.03	0.68
19	-0.06	0.84	-0.04	0.03	0.02	-0.06	-0.00
20	-0.46	0.07	-0.38	0.02	0.01	-0.17	0.49
21	0.47	-0.05	-0.01	-0.60	0.10	0.00	0.00
22	-0.33	0.11	-0.00	0.26	-0.08	0.01	0.76
23	0.23	-0.17	0.07	-0.03	-0.07	0.80	-0.44
24	0.05	0.05	-0.08	-0.17	0.05	-0.91	-0.13
25	0.80	0.10	-0.07	-0.07	-0.12	-0.02	0.01
26	0.84	-0.02	-0.01	-0.12	-0.06	-0.01	-0.05
27	0.85	-0.05	0.05	-0.17	-0.04	0.03	-0.12
28	0.84	-0.06	0.07	-0.06	-0.06	0.06	-0.12
29	0.86	-0.06	0.02	-0.09	-0.05	0.02	-0.09
30	0.62	-0.09	0.14	0.05	0.04	-0.05	-0.15
31	-0.08	0.81	-0.03	-0.03	0.21	-0.02	-0.00
32	-0.12	0.83	-0.03	-0.13	0.17	-0.06	0.03
33	0.33	-0.20	0.09	0.27	-0.35	0.10	0.00
34	0.09	-0.06	0.90	0.06	-0.03	0.11	0.01
35	-0.08	0.04	-0.90	-0.03	0.06	-0.01	0.01
36	0.01	0.06	0.13	0.05	0.12	0.05	0.04
37	-0.02	0.12	-0.07	-0.04	0.78	0.20	-0.03
38	0.02	0.36	0.01	-0.02	0.62	0.06	0.06
39	-0.17	0.05	-0.03	-0.15	0.79	0.05	-0.02
%	28.6	41.6	47.1	51.9	56.0	59.8	62.9

Cumulative Variance Accounted For

ALTERNATIVE 5

ROTATED FACTOR MATRIX

	FACTOR						
VARIABLE	1	2	3	4	5	6	7
1	-0.15	0.08	0.02	-0.71	0.06	-0.13	-0.16
2	0.41	0.13	-0.21	0.24	0.11	-0.06	0.14
3	-0.26	-0.22	0.18	0.43	-0.17	0.19	0.07
4	0.01	0.01	0.13	-0.04	0.01	0.08	0.01
5	0.08	-0.06	0.03	0.03	-0.04	0.03	-0.01
6	0.69	0.05	-0.03	0.32	0.00	-0.03	0.10
7	0.43	-0.07	0.11	0.72	-0.09	0.09	0.18
8	0.66	0.08	-0.07	0.36	0.06	0.09	0.06
9	0.44	-0.05	0.07	0.67	-0.04	0.01	0.12
10	0.72	0.09	-0.01	0.13	0.03	-0.01	0.09
11	0.70	0.03	-0.07	0.34	0.04	0.03	0.05
12	0.37	-0.09	0.02	0.75	-0.06	0.11	0.11
13	0.79	0.05	0.00	0.07	0.04	-0.09	0.18
14	0.59	0.08	0.07	0.34	-0.22	-0.01	0.26
15	-0.04	-0.09	0.09	0.06	-0.03	0.10	-0.03
16	0.74	0.10	-0.10	0.16	0.02	0.02	0.14
17	-0.29	-0.38	0.19	0.28	-0.27	0.16	0.07
18	-0.21	0.08	-0.04	-0.24	-0.02	0.01	-0.60
19	-0.08	-0.75	0.06	0.00	-0.09	0.00	0.01
20	-0.42	-0.07	0.27	-0.02	-0.15	0.02	-0.37
21	0.53	0.03	0.00	0.44	-0.03	0.10	0.07
22	-0.34	-0.09	-0.01	-0.25	-0.01	-0.07	-0.62
23	0.24	0.17	-0.09	0.03	0.74	-0.07	0.37
24	0.06	-0.07	0.10	0.17	-0.83	0.07	0.13
25	0.77	-0.05	0.02	0.07	0.02	-0.12	-0.02
26	0.84	0.05	-0.04	0.09	0.02	-0.04	0.04
27	0.85	0.06	-0.08	0.15	0.05	-0.03	0.11
28	0.85	0.08	-0.10	0.05	0.08	-0.05	0.10
29	0.87	0.08	-0.04	0.05	0.04	-0.06	0.08
30	0.56	0.10	-0.10	0.04	0.02	-0.02	0.07
31	-0.08	-0.78	0.03	0.04	-0.02	0.23	-0.01
32	-0.09	-0.80	0.04	0.12	-0.07	0.15	-0.02
33	0.25	0.20	-0.08	-0.15	0.10	-0.27	-0.04
34	0.09	0.07	-0.86	-0.08	0.13	-0.01	-0.01
35	-0.09	-0.05	0.85	0.03	-0.03	0.06	0.00
36	-0.01	-0.06	-0.08	-0.04	0.04	0.09	-0.03
37	-0.04	-0.17	0.04	0.11	-0.13	0.67	0.00
38	0.00	-0.33	0.00	0.05	0.02	0.41	-0.03
39	-0.13	-0.12	0.03	0.11	0.02	0.65	0.04
%	28.0	40.0	44.6	48.4	51.4	54.1	56.1

Cumulative Variance Accounted For