

Long-term educational programs in nature parks: Characteristics, outcomes and challenges

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In this study on long-term educational programs (LTP) in nature, facilitated by an environmental agency we followed two distinct programs enacted in schools and in nature parks as case studies. Data were collected through observations of activities in schools and in the outdoors and through interviews with students, teachers and facilitators. In one program there were more student-centered and hands on activities and substantial environmental action. In the other program it was the students' first experience with outdoor and environmental education, and the teachers were more active in the outdoors as "story tellers" and role models. In this program, the students brought up their own concern of littering rather than following the environmental agency's concern of illegal herb harvesting. In general, in both programs the participant students expressed high satisfaction, and indicated learning about the environment. We found as well limited collaboration between the operating environmental organization and the schools and no connection to the school curriculum. Post priori, teachers as well as the environmental educators acknowledged the need to address the school curriculum and to better involve the teachers.

Key words: Long-term programs, outdoor education, environmental education, field trips

Introduction

School field trips to the outdoors have long been an important teaching tool, and natural environments are the most popular sites for organized field trips worldwide. Such field trips may be aimed not only at enhancing students' knowledge, but also at achieving social and environmental goals, such as raising awareness of environmental issues, promoting social skills and community involvement, and encouraging leadership. Field trips in engaging and interactive settings have been shown to increase students' interest, motivation and other aspects of learning (Falk, Martin,

& Balling, 1978; Hofstein & Rosenfeld, 1996; Krepel & Durrall, 1981). Indeed, positive impacts of outdoor learning are reported from across the world, and include greater awareness of conservation issues, positive attitudes toward the environment, enhanced environmental knowledge, positive social experiences, and identity building (Brody, Bangert, & Dillon, 2008; Dillon et al., 2006).

Outdoor education programs go by a variety of names, including environmental education, conservation education, adventure education, experiential education, and environmental interpretation (Ford, 1986). They take place in nearly every geographic location, and are sponsored by various levels of educational institutions, state and local government agencies, and private entrepreneurs. Such programs commonly have no nationally standardized curriculum or measures of competency or knowledge (Ford, 1986).

This study focused on extended outdoor education programs provided by the Israel Nature and Parks Authority (INPA), which is responsible for the protection of nature, landscape and heritage in Israel. These educational programs are primarily for elementary schools and take place in areas of ecological sensitivity. The programs that we describe in this paper took place over several days during the course of a year. The basic assumption of INPA was that extended programs allow more time and opportunity for mutual planning with the school teachers and good enactment in the outdoors. Moreover, to create long-term commitment to nature conservation and instill habits of environmentally friendly behavior, extended program should bridge schools with nearby nature reserves and develop students' sense of place. In general, to enable the school-nature learning sequence, all INPA's long-term programs comprise some school-based and some outdoor activities and include an environmental action component. In the study, we followed two distinct programs, each representing a group of long-term programs offered by INPA. One program was chosen as a representative of programs serving primarily middle-class Jewish schools in central Israel, and the other represents a rather new area of activity of INPA, which is working with minority and poor communities. This program was designed for a lower-class Arab village in the rural Jezreel Valley region in the north. Our aim was to study two distinct LTPs as case studies and capture the distinct nature of the programs. Moreover, the analysis would enable to critically examine the involved environmental organization's views and educational approaches toward the programs aimed at the two distinct target populations.

Characterizing and analyzing these programs from different angles will allow us to further build our knowledge with respect to outdoor education in general, and more specifically, with respect to pedagogical approaches used by the environmental educators in these different programs.

Theoretical Underpinning

For centuries, activity in nature has been perceived as positive, healthy and educational. Donaldson and Donaldson (1958) pointed out the cognitive, affective and social merits of outdoor education and Priest (1986) suggested that

Outdoor education is an experiential process of learning by doing, which takes place primarily through exposure to the out-of-doors. In outdoor education the emphasis for the subject of learning is placed on relationships, relationships concerning people and natural resources (p. 13).

Field trips harness the power of sensual experiences and direct experience with tangible phenomena and materials to bring students gradually from simple concepts to more complex

ones, and to construct and amplify abstract concepts (Falk & Balling, 1982; Falk, et al., 1978; Orion & Hofstein, 1994).

In general, the benefits of outdoor field trips can be identified as cognitive, affective, social, physical/sensorimotor; and behavioral (Brody, et al., 2008; Dillon et al., 2006). Those identified in the literature include the contextualization of learning, and applying theoretical knowledge in the field; promoting dialogue and interaction; habituating students to life-long learning; building long-term memories; enhancing environmental attitudes and behavior; seeing things from a new perspective; training in problem-solving and decision making within a real-world setting; and engaging cognitively and emotionally with environmental issues (Ash & Wells, 2006; Ballantyne & Packer, 2002; Falk & Dierking, 2000).

In short, the field trip as an experiential learning situation enables students to engage with real natural or sociological phenomena in a relevant context, and allows the instructor to bridge school learning with authentic expressions of more abstract ideas. The field trip in nature is different in many ways from visits to a museum, planetarium or science center, as it allows direct experience with real natural phenomena. More than any other out-of-school setting, the field trip to nature has the potential to enhance pro-environmental behavior and awareness of conservation (Bogner, 1999).

Most existing studies deal with one-day field trips. The fewer studies of extended programs find them more effective than short term or single-day field trips. Bogner (1998), who compared single-visit and extended outdoor ecology programs on environmental attitudes and behavior, found that the longer, five-day programs were more effective in changing students' attitudes and behavior than shorter, one-day programs. Stronger knowledge better understanding of environmental concepts and issues was found in Israel in a study that compared short vs. long term environmental education programs (Zion, Ventura, Yogev, & Stav, 2005). These authors found stronger connections to the school curriculum and more connections between formal and informal learning in the long-term program. In studying programs of field centers in Queensland Australia, Ballantyne and Packer (2006) found that field centers' principals find more merit in long-term collaboration with schools and communities than in short-term (destination) programs. Moreover, those principals valued the development of professional capacity of classroom teachers to integrate environmental education into the school curriculum and develop whole-school partnerships to ensure continuity of environmental learning in all aspects of school life. However, as indicated above, most experiences in nature are short term and do not allow students to develop conceptually over time. In such short term exposures, Ballantyne and Packer (2002) investigated transformations in students' perceptions of learning in natural environments as a result of participation in outdoor learning programs. The aspects of field trips cited most often by students as positive included the freedom to choose their own activities during an excursion; learning outside of the classroom; learning together with friends; seeing new things; and contact with living things. Students gave their lowest ratings to more traditional learning activities or activities that could be performed in the classroom, such as measuring water quality, listening to stories about the environment, and using activity sheets. These findings were confirmed in our previous work as well that showed stronger impact of adventure activity and social interactions on students' reported experiences (Morag & Tal, 2012) and by Kisiel (2003) who pointed to the problematic use of worksheets in museums. Hofstein and Rosenfeld (1996) stressed that field trips have the potential for providing for student-centered teaching strategies, in which participants can move around freely and explore by their own. Such field trips can strengthen school based learning by adding concrete experiences and they can enrich school based learning by adding new topics.

Although social and affective outcomes of field trips are strongly discussed in the literature (see for example, Falk & Dierking, 2000; Rickinson et al., 2004), student conceptual learning is still emphasized even in outdoor learning. With this respect, Brody (2005), for example, was interested in how personal and group experiences result in learning, in the sense of how the accommodation of ideas with respect to prior knowledge and their assimilation to an existing framework creates new understanding. That study offers important insights into the processes of discovery and interaction that eventually yield the desired conceptual understanding. Brody's focus is on the learning process as reflected by students, while in our previous study, we were interested in the field activity as a whole, including background factors such as preparation in school, collaboration between the teacher and facilitator, connections between the field activities and the school curriculum (Bamberger & Tal, 2008), and the pedagogy of the field activities (Dillon, 2003).

In an earlier stage of our partnership with INPA, we followed over 20 day-long field trips guided by different facilitators in various nature parks, and collected data through observations and interviews with students, facilitators and teachers. In that study we found that very few field trips were preceded by thorough preparation in school, collaboration between schools and INPA educators was limited, and teachers were rarely involved in planning field trips. The pedagogy was often conservative, with most information transmitted through the facilitators, and very little hands-on activity (Morag & Tal, 2012). Following that study, we chose to look more carefully into long-term outdoor programs.

Method

Case study methodology was chosen to study the two LTPs. Our experience with INPA programs has shown that even a single program can turn out completely different when it is run by different facilitators, in different schools, and in different outdoor locations. Thus, case study research made it possible to focus on the specific characteristics of each program and thoroughly describe and interpret the studied features (Stake, 2006). Our initial analysis was based on thick description of every session of each program, and the interview data. Following this description few emerging themes appeared such as: teacher involvement, student preparation, the pedagogy used by the guides and so forth, which were later refined based on analysis framework we suggested previously (Morag & Tal, 2012).

Commonly (but not necessarily), case study research is associated with qualitative methods that allow the use of data from multiple sources. In this qualitative-interpretative study, we collected data in the form of observations and interviews. In the study of two LTPs, we observed all the component activities both in school and during field trips to the outdoors. We also interviewed INPA facilitators, teachers and students. The two programs to study were recommended by the third author, INPA education coordinator. She recommended FoS for being an established program targeted at a large student population that lives in the coastal area. TC was selected to represent a rather new program tailored especially for one minority school. In choosing two distinct programs we aimed at capturing as many characteristics as possible and highlighting many possible issues with respect to long term environmental education projects.

The programs and participants

"*Friends of the Sand*" (FoS) is a well-established program that was supported as well by the Israeli Electric Corp. It was developed for schools located in Israel's most populated coastal area. Many coastal ecosystems are endangered and suffer from intensive development. Thus, the main goal of the Friends of the Sand program is to increase students', schools', and communities'

commitment to sand habitats and their conservation. In our study, we closely documented the activities of one fifth-grade class from a regional school serving middle-class suburban communities. The children in the class were participating in the program for a second year. The program had five parts, as follows:

- (1) A two-hour preparation period in school, during which the facilitator reviewed the previous year's activities and prepared the students for the next activity.
- (2) A field trip that involved a learning activity and environmental action (to be described below) in the adopted nature reserve.
- (3) A field trip to a nearby heritage site.
- (4) Another field trip to the adopted nature reserve, including a learning activity and an action component.
- (5) A culmination of the program in the adopted nature reserve in which the six graders who end the program led an activity for the entire school community – students and parents.

The *Tabor Creek* (TC) program serves schoolchildren in an Arab village in a rural region in the north of Israel. This community is in continuous conflict with INPA over unauthorized hunting and extensive harvest of herbs, mainly three lobed sage (*Salvia fruticosa* Mill) and wild oregano (*Origanum syriacum*), from the slopes around the village, including the Tabor Creek nature reserve. Through this program, INPA aimed to develop positive relationships with the residents and enhance their awareness of the environment in general and of the harm being done to the reserve by their actions in particular. In this program we followed two fifth-grade classes of students from low-income families.

The program was to consist of nine components, but eventually only eight took place, since the environmental action was canceled:

- (1) An introductory activity in school, during which the facilitator introduced INPA, discussed rules of behavior in nature reserves, and described the geographical and natural characteristics of the region.
- (2) A game called "The Young Planner", which engages students in planning decisions to expose them to environmental problems in the region. The activity took place in school.
- (3) A learning activity in school about waste disposal and recycling; how long does it take for waste to "disappear."
- (4) An activity in which groups of students visited kindergarten classrooms to teach the young children about the importance of recycling in general, and recycling used batteries in particular.
- (5) A field trip to the nearby Tabor Creek nature reserve.
- (6) A field trip to a nearby hill, where environmental problems in the region can be observed. An activity which was to involve planning an environmental exhibit on the hill was canceled.
- (7) A field trip to a nature park elsewhere in the country to illustrate differences between an open nature reserve and one with an entry fee.
- (8) A culmination of the program on the topic of endangered herbs. This activity included a meeting with parents.

The school staff was enthusiastic about the program and seemed happy to collaborate with INPA facilitator. The researchers took part in one meeting of the school principal and INPA

facilitators and in this meeting encouraged both to collaborate and plan together, a suggestion that was not really addressed in later stages. In aim highlighting the importance of collaboration between the school and INPA, in a follow up meeting with the facilitator, we again stressed the importance of teacher involvement. Further, throughout the program, we supported the facilitator with continuous feedback and some suggestions to help with challenges he or we identified. For example, during the first field trip to the Tabor Creek, we drew the facilitator's attention to conversations that were taking place between the teacher and the students. The teacher told his students stories about his childhood memories from the place where they were hiking, and explained about the sites they saw on the way adding his historical perspective. We referred to those conversations as an involvement of the teacher, and assumed that legitimating such involvement would give the facilitator the freedom to let the teacher be a partner on other occasions as well. During this field trip we also saw that the facilitator's suggestion that the children collect trash together became a social activity. Later on that day, after we noticed students taking advantage on others and making them carry all the trash, we drew the facilitator's attention to the problem and he came up with a solution that involved all students.

Data Collection and Analysis

Due to the distinct character of the two programs, no attempt was made to collect exactly the same data from the two. As indicated, in both programs we observed all components of the program, and documented students' activity, conversations, and the functions of the facilitator and teachers. Semi-structured interviews were carried out in both programs. Seven students, a teacher and the facilitator from each program were interviewed. All the interviews with the Arab participants were carried out in Arabic, by our graduate student research assistant who is a native Arabic speaker. The meetings with teachers and the principal in the Arab school were carried out in Hebrew, as some of the participants did not speak Arabic, while all the Arab participants were bilingual.

Data analysis was initially inductive, aiming to identify emerging themes. The authors discussed the data from the observations and interviews over several rounds until we reached agreement upon their interpretation. After realizing that the programs' goals and pedagogy as were presented by INPA and as discussed with the school staff of TC program are compatible with criteria discussed in the literature such as setting goals and preparation, connection to the school curriculum, addressing the environment, teacher-guide collaboration, social interactions among students, active learning and environmental action (Morag & Tal, 2012), we focused on the following analysis categories: planning and goals, collaboration, connections to the school curriculum and everyday life, social interactions and activities. As we investigated patterns of the LTP and participants' views, we did not attempt to analyze learning outcomes in detail.

Findings

Following, each program is described and analyzed separately while emphasizing idiosyncratic feature of the two programs. Some introductory descriptions, relevant to the two programs, appear at the beginning of sections that refer to the first program in italics.

FoS Program

Setting goals and preparation

The main goal of both programs as indicated by INPA was to build the students' connection and commitment to the nearby nature reserve. The first meetings of both programs were dedicated to introducing the organization (INPA), presenting the program, and teaching basic facts about nature conservation. In both programs, INPA environmental educators came to the school with already structured program, and discussion with the teachers on the components of the program was limited.

The facilitator of the FoS program who has been facilitating the program over two previous years, pointed to two main goals of the program: *"to introduce the children to their back yard"* and *"to teach them how to hike appropriately in nature."* She indicated that the goals of the program focused on the specific reserve and did not extend to any broader goals of environmental education. This statement is to some extent in conflict with INPA education department goals. INPA expected the participants to learn about the sand habitat ecology, and to enhance care and commitment of the students to the nature reserve. The facilitator defined success as *"if the students are willing to come with us and are cooperative without the involvement of the teacher."* She emphasized mainly motivation and affect. This facilitator pointed to student activity as an important component of the program, and described their participation in maintenance activities in the reserve (pruning, garbage collection, constructing trails, removing invasive species) as *"the way to help the students create a personal connection to the place"*.

The teachers of FoS could not refer to "their own goals" or any other clear goals in the interviews. They aimed at *"connecting the students to the environment"* and indicated almost no prior expectations. They neither interfered with the plan nor did they request any modifications. As R' one of the teachers indicated:

M' (the facilitator) leads. I am there for the students. Discipline... to be there. I learn together with them and my place as a learner is even a model for them. I like this position, and I am confident with the facilitator. I was never asked to go beyond and I am happy with it the way it is.

The first activity, in school, included a small group competitive game that dealt with the concepts the program focused on: INPA, nature conservation, national parks, nature reserves, etc. In addition, the facilitator recalled the previous year's program and asked the students to share their memories and experiences. Then, prior to each activity, the facilitator came to school to prepare the students. In these short 10-minute sessions, she informed the students of the specific plan for each activity. Usually, while talking to the students, the teacher was busy with technical matters, such as checking permission slips, checking the students' gear, and finding solutions for students who could not go out.

Since the programs' goals were presented quite broadly and generally, in our interviews, we wanted to learn about the way the students view the program's purposes.

[1] Gal (pre-FoS): The facilitator told us about FoS and what our program is about, to protect, ah we need to do something for the reserve.

Researcher: Do you know why they chose this reserve, or why your school was chosen?

Gal: I don't know, I think the municipality suggested it. There is lot of work to do there. Maybe in other places they have some other investors, or other schools.

[2] Dror (post-FoS): This is a program aimed at protecting the environment and the nature reserve.

Researcher: If you'd take your family to the reserve, what would you tell them?

Dror: That we need to protect it and avoid littering.

Researcher: Why?

Dror: Because it's a nature reserve and the animals that live there might think that trash is food.

The students were quite articulate while explaining how the program will help protect the nature reserve, and most of them expressed great enthusiasm about it. On the other hand, they were confused with what exactly needs protection, and although they had some knowledge, based on the previous year's program, this knowledge was somewhat inaccurate.

Collaboration and roles

In both programs, the initiator was INPA. The environmental educators presented a pre-structured program to the schools, and no mutual planning occurred. It appeared that we, the researchers, were pre-conceived with the idea of "genuine collaboration", while the schools and INPA felt comfortable with the familiar situation in Israel, in which there are providers of outdoor program and the schools act as consumers, who have little expectations they put forward.

In Fos, it seemed that the role of both parties was clear. The facilitator was responsible for the activities; she was the expert with respect to both knowledge and logistics; she was in charge of the schedule; and the teacher was responsible for checking the students' gear and for their behavior. Although the teachers took part in the students' small group inquiry in the dunes, they refrained from working when the students were enthusiastically working in the reserve. At that stage, the two teachers preferred sitting alone. Those teachers explicitly stated that they left M', the facilitator, plan and lead the activities knowing "*how professional she was*". FoS facilitator viewed the role of the teachers as very simple: "*All I ask the teachers is to give their help at specific times when I need them.*" She explained her small expectations from teachers on the grounds that "*teachers don't like to go outside... so I don't have any expectations. They are adults and we are not going to change them.*" On the other hand, she indicated that when the teacher "*takes an interest or even collects one small branch, then all the class follows her.*" These statements reflect an ambiguity in the facilitator's perceptions of the teacher's role. She understood the important role teachers can play, but she was not aware of the part she could play in encouraging and inviting the teachers to take a more central role. One of FoS teachers expresses both teachers' feelings with respect to their own role:

M' (the facilitator) is the leader. I am there for the students. I learn with them and by that, I give an example. Also (the opportunity) to observe the kids from a different angle. I trust M' and I think that my place is in preparing them, to integrate to what is happening in school, to the curriculum (R').

Collaborating over connecting the program to the school curriculum was absent. Although the facilitator understood the importance of connecting the program to the curriculum, and referred to such connections as "wonderful", she noted two problems. First, alignment is not always possible, because of changes in the curriculum or in the order in which subjects are taught. Second, teachers are so busy and have so many obligations that they choose not to teach

the content that they agreed upon with the facilitator while planning the program. After the program has ended, the teachers expressed a different view.

The drawbacks both FoS teachers referred to was insufficient connection to the school curriculum and to school life.

R': not always the topics are related to the curriculum. In this year's program we tried but did not do well.

N': It should have been more integrated with the school, meaning that it should not begin and end with these meetings but more connected to the curriculum before and after the activities. It is there, and it is gorgeous, but it will end and we will forget, until next year.

Post priori, M' addressed collaboration over planning the program together.

We need to be a team that thinks together. Everyone should bring her own expertise. The knowledge of the students and of the curriculum and if we do it early enough and tie things together, we will have something more meaningful. Right now, she (the facilitator) gets them without knowing what happens in class. I still draw some connections in class, even use the social experiences or the practices (they used in the field), but this should not be dependent solely on the teacher...

This quote is very interesting. It seems that only while being asked, R' really thinks about the collaboration with the facilitator, about how the program can be better connected to school life and about mutual planning. In the entire transcription, which is not provided here, she points to her expectation that in the future, they will find ways to better connect the program to the curriculum and to the social activity of the school.

Pedagogy

In the outdoor activities of both programs, the facilitators encouraged the students in their direct experiences, with some differences attributed to the different cultural characteristics of the two communities.

In FoS, in each visit to the nature reserve, the facilitator asked the students to observe their surroundings and look for differences that occurred since their last visit. Students looked for animals' footprints in the sand and tried to identify them, and did an inquiry activity on plant morphology in sandy habitats (succulents, hairy). The facilitator encouraged the students to play in the sand and roll down the dune. Overall, most activities were based on hands-on experiences of individuals or small groups of students.

Connection to everyday life. *In both programs we found very little connection to the students' everyday life.*

At an observation point, where we expected that FoS facilitator would help the students identify their own communities, she never did so. She never referred to their prior experiences as residents of the region, nor were they asked about their everyday experiences in and out of school. We did not observe any other attempts to make such connections.

Social interactions. *When children get the opportunity to be together in the outdoors they are physically active. They talk, play and do things together. Therefore, we looked mainly for*

planned interactions aimed at encouraging learning by inviting students to share their thoughts and do things together.

The activities of FoS included many small group activities with components of inquiry: identifying footprints and plants, investigating physical conditions, etc. The facilitator avoided merely explaining. She asked many questions of various types. The following examples indicate a simple recall knowledge question that help students understand the idea of germination, and two questions that require thinking; unfortunately, the second was answered almost immediately by the facilitator herself (F=facilitator; S= Student/s).

1. F: and all these little things you sit on... what are they?
S: Weeds.
F: No, what exactly?
S: Sprouts, seedlings.
F: Seedlings, which means that... what was here on the path? What do the seedlings come from?
S: The rain.
Teacher: What a seedling begins from.
S: A seed.
F: Yes, there were seeds here, and after it rains they germinate.

2. F: Pre-historic man migrated as well, why do you think?
F: He followed nature, food. Like whom? We talked about it in the previous field trip. Like animals.

In some cases questions that the facilitator of FoS asked turned into a conversation:

- F: Give me an example of a migrating animal...
S: Birds.
F: Correct, this is the migration season, and you can actually see migrating flocks; why do they migrate?
S: It's fun, they can see the whole world.
S: The winter.
F: Correct. Who knows how they feel that winter is coming?
S: When they feel cold.
S: The same as we feel.
F: How?
S: They listen to the forecast on the news [laughter].

The facilitator is amused by the idea of a stork that listens to the news.

- S: Like the stork that does yoga in that TV commercial.
S: One feels and transfers it to others.
S: According to the sky map.

Although she did not question the students' hypotheses again, she let them come up with ideas and then provided the answer.

F: They notice the days become shorter and they do not have enough time to find food. This means that winter is approaching and that she has to find other places with more hours of light.

During the environmental activity, in which students collected and spread seeds of native plants to prevent the public from walking on undesignated trails, and while tying ropes alongside trails, they had many opportunities to talk with each other. In some talks we documented students planned and debated about their work, and in others they casually talked about everyday topics such as their social life, TV shows and sports. Much interaction occurred when the facilitator gave them “fun-time” on the dune. The learning activities, in small groups and the nature of the “fun” and “action” parts, allowed much interaction among students.

Activity and Action

Here we address learning activity, physical activity, and environmental action.

As indicated, in FoS most of the activities engaged the students in small groups: searching, investigating, and demonstrating, in pantomime, the challenges facing animals. The students prepared ID cards for plants, solved puzzles, and walked in the nature park in small groups. Part of the program involved environmental action as well. The students tied ropes along the trails to prevent visitors from leaving the designated path, and they collected and swept seeds onto unwanted paths, so that they would be covered by plants during the winter. They dragged debris to these areas as well. In addition, they were encouraged to play in the sand during every field trip.

The Tabor Creek (TC) Program

Setting goals and preparation

One objective, commonly addressed by INPA staff was “to connect the residents of the region to the surrounding natural habitat and to develop their sense of ownership and commitment to the natural world in their ‘back yard’”. The principal of the school participating in TC was exceptional for pointing to specific goals: “that students will go out, connect to nature, change their habits and learn from nature.”

This was reflected by the students of TC program:

Hanan: to go on field trips, to observe the trash in the region.

Abeer: (to learn) how we can be responsible and how to teach others to protect the environment; to keep it clean.

Ahmed: Because we, the little ones make our parents hear and know. We can make others care.

Salem: We will try to educate others. We will be the “seed of the cleaning plant” and teach everyone to put trash only in the bin.

The fact that TC students were all focused on the trash issue is intriguing. Their own goals were quite different from the goals stated by the organization. INPA was focused on nature conservation messages, but the students brought in their own concern, which was more important for them.

The facilitator of the TC program viewed the program as a collaboration between the organization and the school (“*They [the school] and I have the same goals*”), adding that the

organization decided on this program “*in order to enhance environmental literacy and to get the parents’ attention, through the children.*” By addressing children and parents, INPA intended to build a more positive relationship between the village and the environment, especially the Tabor Creek nature reserve, so the villagers would avoid littering, harvesting herbs and illegal hunting. He also noted that the program should educate children and adults to behave appropriately in open spaces. The facilitator wanted the program to become a unique event – “*something different than what happens in school.*” For this reason, he used pictures, power point presentations, and “*stuff that the teachers usually don’t use [in the Arab sector].*” The facilitator viewed the program as a community endeavor, not limited to the school. He indicated that he would consider it a success if the parents (especially the mothers) would attend the meeting that he planned to organize especially for them [a meeting which eventually developed to a blunt debate].

TC teachers explicitly expressed their expectation for “enrichment and enjoyment”. They did not expect the program to be connected to the school curriculum. They viewed the program as an opportunity to “*promote the school*”, as a “*leverage*” and as a trigger to develop care for the environment. They repeated their expectation that the students enjoy the activity. The principal of the school was the only person who pointed out connections to the curriculum. He was the one who suggested highlighting the topic of water consumption and saving in school while the program focuses on the nearby Tabor creek. However, the principal was present only in the planning and wrap up meetings and eventually, the teachers did not request making such connections.

Just like TC facilitator said, in the first meeting of the program, he showed a Power Point presentation on the program and about INPA and its nature conservation activities. Most of the activities of that program took place in school, but no further preparation was done even before the outdoor activities. The teachers often left the students with the facilitator and went elsewhere in school. Only after explicitly demanding their attendance, did they stay in class and told the students they needed to stay “*only because of their bad behavior*”. They provided only technical details before each activity, and it was evident that they did not know the specific plan for the day. As aforementioned with respect to FoS, in TC, the goals were not explicitly presented to the students as well. They had only vague ideas about the purposes of the program before it began as well as after its completion. The following quotes from interviews with students carried out before and after the programs illustrate this ambiguity.

[1] Omar (pre): The program is about protection of nature, so that people will not pollute

Researcher: Do you know why are you taking part in this program?

Omar: Because we are children and our parents and all the grownups around us will listen to us and stop littering.

[2] Haaled (pre): We are taking part in the program in order to make those around us aware so they don’t litter.

Researcher: But why you?

Haaled: Because we are old enough, we are the oldest in school and have responsibility for many things. I can carry this responsibility.

[3] Zahara (post): We took part in the program because we are at an age when we should know about this stuff... it will encourage us to do more in this subject and prevent littering... we should try explain to the young children that the garbage they throw on the ground causes a bad smell and the development of bacteria.

[4] Yanal (post): We used to do things wrong [he gives an example of his father and uncles littering] and INPA came to teach us how to do things correctly.

Researcher: What is correctly?

Yanal: Now I throw trash into the garbage can.

Again, it is evident that although preventing littering was not one of the declared goals of the program, in the pre- as well as in the post-interviews all the students referred to it as the main contribution of the program. All of them also reported that their age and maturity were the main reason they were invited to take part in the program. The fact that TC students brought up their own agenda, and ignored INPA's goal of increasing local people's awareness of the harmful results of hunting and extensive harvesting of herbs could imply that the adults (INPA staff and school staff) can add the students to the initial discussion about goals and address their input.

Collaboration and roles

In a meetings in TC school, we stressed the importance of the school staff involvement; however, no adjustments were made to INPA program, and no teacher input was invited or used to guide the development of the program. This is so even though the facilitator invited the teachers' input in the field, as will be described later.

No clear roles were evident, and in a way, the location of the activity determined the adults' roles. In school, the teachers were busier with other things, leaving the stage to the INPA facilitator. Once in a while, they left the room and as indicated, seemed angry when asked to come back and help with behavior issues. In the outdoors, the dynamic was different. Although the facilitator did not explicitly ask the teachers to take part, they naturally joined in, shared their life stories about the creek with the students, and the facilitator let them take part in explaining things. In some instances the teachers and facilitator complemented each other. The teachers looked as if they were very comfortable in the outdoors, and the activity appeared much more collaborative than in school. For example, during one of the explanation stops, while the students and the teacher were facing the facilitator, one of the students found a porcupine quill and showed it to the teacher. The teacher waited until the facilitator finished his explanation about the flowers of the area and then stood up, showed the quill to the group, and began talking about it. While he was talking, he moved from his position within the group to the front, and stood beside the facilitator. After a while, the facilitator moved from his position and joined the sitting students. Only after the teacher completed his explanation did the facilitator return to his place in front. He then added information about the problems of the porcupine population in the area, which suffers from overhunting.

The facilitator described the program as an initiative of INPA. Therefore, "*the school is not involved in planning and writing it. They [teachers] can make suggestions, but I, as the professional, know better than they.*" Regarding the role of teachers, he argued that

[t]hey have a very important role. The teacher has to cooperate with you, not only to maintain discipline. He is central to the success of the program and can even sabotage it. You shouldn't ignore him but get his involvement and let him have the feeling that he is important. Give him the stage. The teacher is the source of power for the class and some of them, the homeroom teachers for example, are more authoritative than others and that is why it important to me that he [the homeroom teacher] stays in class [during the program activities].

In TC program, connections to the curriculum were wholly absent. Indeed, the facilitator never addressed the school curriculum. It was clear that the program was extracurricular despite

the principal's expectation, and neither the facilitator nor the teachers tried to connect it to any learning that occurred in school.

Pedagogy

We observed almost no student-centered activities in TC, but the facilitator and the teachers were attentive to student discoveries and addressed topics such as animals, plants, and phenomena along the trail. When the group noticed animals such as wild boars or gazelles, he stopped and offered information about these animals. As indicated, the teachers joined the explanations and told the students about the history of the region. One of them suggested that the students be quiet and "*listen to the silence*", and while the facilitator was busy looking for something in his backpack, the teacher continued talking about the gazelles in the creek. When the group reached a pond, the teachers and the facilitator allowed the students get in the water and have fun for a while.

Connection to everyday life. As indicated with respect to FoS, we found very little connection to the students' everyday life. We assume this was a result of unawareness of the importance of drawing these connections. One exceptional example of TC teacher was when he addressed two types of rocks introduced by the facilitator. He referred to the volcanic matter known as scoria, pointing out that a piece of rock can be purchased in drugstores for foot care. Then he explained how tuff, a type of rock consisting of consolidated volcanic ash, is used for gardening.

Social interactions. TC program was facilitator-centered. Haled explained and the students listened. Only in the "Young Planner" activity in school did the students work in small groups, and in one outdoor activity, six students were invited to sort cards showing plant life cycle stages from seed to seed and arrange them in the correct order. Other than that, in the activity in the village's kindergartens, small groups of students told the little kids about collecting used batteries and brought collection bins to each kindergarten class. Although we observed mainly facilitator-centered pedagogy, the students had many interactions with the teachers, who asked questions, answered the students' questions and volunteered explanations. During one field trip the teacher led a prayer before the beginning of the hike. After another field trip, a student mentioned that "*Mr. Adnan showed us plants that people that lived there used in the old days, like the prickly pear cactus that they eat even nowadays*". Here again, it was evident that the teachers played a major role in their students' lives.

Activity and action

In TC, the field trips were not based on active learning, but in two of the activities in school the students were very active: in the abovementioned "Young Planner" game, and in a recycling activity in the village's kindergartens. The environmental action that was planned on a nearby hill was eventually canceled.

Programs' summary

The target populations of the programs were different and the goals and means were somewhat different. In each program, good practices could be detected as well as limitations that require further attention on the part of the educational staff at the schools and INPA. It should be noted that both schools appreciated the main goal of the programs – connecting the students to their environment and developing their sense of responsibility – though greater enthusiasm was shown at the TC school, where the principal was extremely enthusiastic and even posted a summary of

the program on a portal heavily used by members of the Arab community in Israel. Despite limited collaboration between the schools and INPA and limited connection to the school curriculum and the students' everyday lives, the facilitators knew the students and the teachers, and to some extent got the teachers' help.

All the teachers described both programs positively. They indicated the importance of outdoor learning, of student commitment to the environment, the good practice of the facilitators and praised the learning about the environment. N' one of FoS teachers indicated:

The facilitator is excellent. She does things really well and delivers interesting messages. The students love the field trips... we adopt a nature reserve, and have our signature, because we put signs and ropes. . There is learning and caring about the environment and beach protection, and beyond that – I like outdoor learning.

Her colleague, R' adds that

... connections to nature! Nature studies “dissolve” today. In Science, there is something about plants, but going out brought back to our school what we used to call nature studies with regard to our own environment.

Although before the program, both FoS teachers indicated only vague goals, post-priori they talked about substantial conceptual learning and gave examples to support their statements. R' spoke about the students' ability to teach others in the reserve, and N' acknowledged the conceptual learning but pointed to no less important social learning.

...most important is what I, as a child can contribute to society, conservation, action. If something is important and I understand why to preserve it, then it should be executed. There was much collaboration, in social terms, as a class. They (students) show other face they do not necessarily show in school. There is learning in the personal long-life level and social learning.

In TC program, one teacher in particular was involved in telling the students about the history of the creek and about his own memories from being a child in a rural village near the creek. TC teachers enjoyed the outdoor activities, but believed it was the facilitator's responsibility to run the program.

The teachers as well as INPA facilitators had second thoughts about collaboration and about connections to the school curriculum. FoS facilitator indicated that in her view, the program was mainly about teaching the students how to behave in nature reserves and connecting the students to the reserve as “their back yard”. She pointed to the active role taken by the students as the most important component in that context. However, this facilitator recognized the importance of drawing a connection to the curriculum, and pointed to the teachers as a role model for the students. At the same time, the facilitator expressed an understanding of the obstacles teachers face to taking a more active part. She ended the interview with the statement that she “can see the gap between what the organization expects to happen, and what actually happens”.

Students were active learners in FoS, and in both programs had many opportunities to socially interact. Both facilitators made good use of the environment and encouraged the students to physically experience by rolling down the dune or getting in the water, and in both programs there was enough time to discuss nature conservation content in the outdoors and in school

(mainly in TC, where most activity was in school). The facilitator of TC program has gone through an important learning process himself. He indicated how much he learned, and pointed to his unique influence on the students and the community, stating that unlike how the local people treat other INPA employees, people in the village “*know me and accept me*”, which gave him a good feeling that he was doing well.

He strongly identified with the program’s ideas and goals and expressed his ownership of them. Indeed, the facilitator indicated that he had freedom to change the program or add to it:

The parents’ evening is my initiative. I get the parents involved... and with the batteries, I collect them not only in school, but in the whole village. I myself go to the kindergartens and place the collection bins... it was my idea to broaden the program and take it out of school.

The personal involvement and the concern of the facilitator in TC are very prominent. At the end of the interview, he summarized his own mission:

I
feel that there is some change [from the previous year] and the goals are being achieved. I feel it at the children’s level in school. I like to educate and convince others of what I am doing. I can see the lack of programs in the Arab sector and know that we should change some of our habits that come from home. You have to live the things you teach.

Indeed, this facilitator was very motivated to make a change. He acknowledged the teachers’ potential to improve the program, but he did not say how exactly, nor did he actually do things together with the teachers.

The students’ views of the programs

To better learn about the programs, we collected data on the participants’ views through interviews. The students’ expectations, their perceptions of the programs, and their learning outcomes were obtained through interviews. Overall, the students were satisfied with both programs. They viewed the programs as having the potential to teach them about the environment and as an opportunity to do “good things” for the environment (before the programs began). At the completion of the programs, the students showed substantial learning, and were able to explain, in detail, ideas about nature conservation (in FoS) and about the importance of having clean environment (in TC).

FoS program

Noa: (I expect) to learn some things that I don’t know and also what not to do when I’m in the wild.

Dror: We learned (last year) about the causes of pollution so I want to learn how to stop it.

Gal: (I hope) that we will learn new things... that we will discover new trails that nobody discovered before and we will open them up. And also [I hope] that we will block paths so people should not step on them. Last year we were young and

mainly hiked in the reserve but now we are much older so we have more responsibility and we can do more.

After the program the students indicated many social, affective and learning outcomes. They expressed scientific as well as environmental knowledge.

Roy: They [people] get to the reserve with SUVs and off road vehicles without permission, destroy and harm the animals. People who come there to have fun pollute the environment.

Hagar: There are hikers who are not aware and when the ropes that mark the trail are ripped, they step everywhere and make unwelcome paths.

They also well articulated the scientific content:

Naama: In the summer, there is a problem because the sand is very hot and animals can't step on it. So there are animals like lizards that have long legs that lift them away from the ground. Other animals that are not reptiles go out only in the evening.

Hagar: The plants have a problem of evaporation from leaves [transpiration], so it [the plant] reduces its [surface] size so less water evaporates. And also, the air is salty because of the sea so the plant grows short hair so the salt doesn't touch it.

Human impact on the environment was strongly addressed by the students, which indicates the success of the program with this respect. However, students were not sure about the reason for choosing them to take part in the program. The idea of "*connecting them to the reserve as their back yard*" that was expressed by INPA facilitators, was not addressed. Overall, the students' enjoyment was associated with the activities that would actually benefit the reserve:

Noa: Yesterday, we sowed seeds on the path so [after they germinate] nobody will walk on these paths. It was fun.

The interviews that were carried out five months after the end of FoS program reinforced the significance of activity. The students were asked whether they would change something in the program, and it was clear that they preferred to be more active in learning and/or in working and that they preferred fewer explanations.

Shai: ...that we would do much more work, also in groups. To do more... I prefer more working and less writing and explanations.

Naama: It was fun when we were divided into groups and ran between [activity] stations in order to solve the quizzes. The kids enjoyed it much more because there were less explanations.

In summary, FoS students point to the program's potential to impart scientific ideas, and to teach about environmental problems and their solutions. The students also reported learning about appropriate behavior in the reserve. The only criticism was toward too much explanation

and not enough action. Interestingly, this was in spite of our own impression that the majority of the program was student centered and that it consisted of mainly active learning.

TC program

A variety of expectations came out in the pre-program interviews, but a common theme involved the littering issue, which is a big problem in many Arab villages. The interviews revealed that the children expected to learn about the area and other environmental problems as well, but the trash problem emerged over and over again in all contexts.

Haled: In the program, we will learn how to protect the environment and how to teach others to protect the environment. That is how the country will be clean.

Zahara: ...I visit other cities, like Nazareth, and see they're clean, nobody is littering, and I expect that the program will help us with this issue... We'll go to a place where we'll find trash and the facilitators will explain about it and so we'll know how to change it.

Zinab: (They) will tell us about the characteristics of the area, about cleaning, and about endangered species, and poisoning and about the damage this causes to ground water.

Ahmed: We'll go to Tabor Creek reserve and around the village to see places that are full of trash.

Before the program began, the students expected to learn about the area, they emphasized learning about how to deal with the problem of littering, and they expressed a wish to become change agents in the community with regard to this issue. After the program, all the students expressed enthusiasm. They indicated how most of what they expected was fulfilled – they went on field trips and learned about the area and about plants and animals.

Omar: I now know new things, for example about the spines of a porcupine, how they are built and that they are sharp and are used as a defense mechanism, how it [the porcupine] raises them so the predator bumps into them.

Although they used general expressions and terms, they indicated that they had learned a lot about the area and especially about Tabor Creek, as many had never visited the creek at all or had walked only a short part of the trail.

Diala: We went to places we didn't know before.

Researcher: What places?

Diala: Tabor Creek, I knew the name but had never been there before. We became familiar with new flowers and animals.

Researcher: Like...?

Diala: Porcupine, birds... I liked the places where we sat there [while resting during a break] and also the mountain, I've never been to a place with such a climbing challenge... Swimming [in the creek] was most fun.

Only two students found the program not satisfying enough with regard to the extent of activity.

Zahara: Yes [it was as I expected], but I was sure that you [she meant the facilitator] were going to let us fix some things... that you would let us be young guides like we were doing in the kindergartens [the students told the young children about recycling batteries], so we could have done the same on the field trips.

Ahmed: I expected to clean the village.

Abed provided a very articulate summary of the students' impressions.

It was a very nice program and we learned a lot. For example, we learned that garbage should be thrown in special places only and that factories should be built far away from nature reserves to avoid disturbing the animals. When we walked along the Tabor Creek we learned, for the first time, that once there was a village named Sirin that was bigger than Nazareth of that time. In Ei'n Afek reserve I learned how rainwater eventually makes a spring and about the swamps that were in this area, and how they were created because it is a closed place and water can only evaporate.

To summarize this part, it seems that in FoS, the students recognized their learning and viewed the program as enjoyable; however, it was clear that they identified an opportunity to actively contribute something to the protection and management of the reserve only to some extent. In TC, the students emphasized the broad learning and new knowledge that they gained. Although their program included only limited activity, they were less concerned about being active learners and doing things in the park. Most likely, these views reflect the different characteristics of learning in Arab schools, which is more teacher-centered, as will be discussed later.

Discussion

We hoped to better understand the nature of long-term environmental education programs taking place primarily in the outdoors and aimed at developing knowledge of nature conservation, care for natural habitats, and a sense of responsibility that will affect the young students' environmental attitudes and behavior. Unlike one-day visits, long-term programs have better potential for mutual planning, and careful adaptation of the program for the school's needs and its unique characteristics.

We found that the environmental organization we studied (INPA) is aware of the importance of educational activity, which is secondary to its nature conservation mission. Yet we also found that the activities studied put little emphasis on educational objectives, means, and pedagogies, which is quite similar to what we had found in a previous study of single-day field trips (Morag & Tal, 2012). This was evident in the two programs though with differences related to the programs' characteristics and the target student population. The schools for which the LTP are provided are perceived as partners only to a limited extent. In fact, as TC facilitator (Haled) put it, "*INPA initiates, INPA executes and INPA is responsible*".

Teachers are invited to take part mainly during activities, when they can help students and the facilitator. However, the teachers commonly prefer taking a secondary position and dealing mainly with organization issues, and the facilitators hardly see them as equal contributors. This was expressed in the interview with Haled and with FoS teachers, although post-priori, those teachers indicated they could and would be better involved in planning. Our

findings on these relationships between teachers and informal educators brings up the “who came first – the chicken or the egg” dilemma and echo previous findings of teachers’ struggles in functioning in out-of-school settings (DeWitt & Storsdieck, 2008; Dillon et al., 2006). In our own studies, for example, we found that quite often, teachers were not fully aware of the field trip program, and viewed their role mainly of “keepers”, safety agents and administrators ((Tal & Morag, 2009; Tal & Steiner, 2006; Tal, Bamberger & Morag, 2005).

Teachers rarely had specific goals, nor did they take active part in the educational event itself. However, most of these previous studies focused on one-day field trips to museums, which allow only little interaction between the facilitator and the teacher (and which attract the bulk of the research literature). In LTP in natural environments, it is expected that the longer time would allow both parties to develop working relationships to set goals together, plan programs, teach the content, and maybe conduct post-program assessments – especially if programs continue over consecutive years. Although schools set long-term objectives, plan the school year ahead and monitor the enactment of their curriculum, they leave the outdoor education in general, and even the extended programs outside their planning and monitoring. INPA staff accepts this reality and does not make unusual attempts to make the teachers more responsible and active. It appears that despite the opportunity to collaboratively develop programs that will address nature conservation goals as well as the school’s objectives, mutual collaboration is either absent or insufficient.

The case of Haled, the facilitator and the TC program studied in the current research, is most interesting. Haled represents a governmental body (INPA) which is in conflict with Israel’s Arab minority over old ways of exploiting natural resources, and current environmental and nature conservation policies. INPA and its rangers, in uniforms, are viewed by many Arab citizens of Israel as just another form of oppression. They view INPA as an arm of government interfering with their right to use *their* natural resources: land that they used to graze, herbs that they used to harvest, water that they used to take directly from the creek (Tal & Alkaher, 2010). Such resources are now either no longer freely available, or officially protected. INPA’s educational efforts in the Arab villages and towns are well expressed in Haled’s practice. The identity of INPA facilitators is worth studying. Haled’s example is outstanding, but based on our previous studies, we cautiously assume that part of the facilitators’ avoidance of better coordination is a result of clear distinction they make between being a nature guide, and being a school teacher.

The differences we found between the TC and FoS programs in general and their pedagogy in particular featured in our case studies can be explained, in part, by cultural differences between Arab and Jewish communities in Israel. In most Arab schools, teacher-centered practices are more common, learning is based primarily on memorization, and active, hands-on learning is limited (Al-Haj Majid, 1994; Eilam, 2002). In our study, although the teachers in the TC program were more involved during the field trips than those in the FoS program, the structure of the activities was teacher-centered and Socratic, with either Haled or the teachers functioning as interpreters rather than as mediators of student exploration or hands-on activity. In FoS, the facilitator and the students were used to active learning, and consequently, most of the activities in the outdoors were small group learning activities. On the contrary, Haled, who grew up and was educated in an Arab village himself, did not attempt to introduce more student-centered pedagogies. However, this did not disturb his audience that was satisfied with the innovation, and with the opportunity to elevate the school, as expressed by the principal’s website post and by the teachers in their interviews and with the overall enthusiasm and enjoyment of the students.

Although we did not assess learning outcomes, nor did we compare one-day field trips to extended programs, our findings support those of Bogner (1998) who found substantial learning outcomes in extended environmental education outdoor programs. The students of both programs

were able to articulate the main ideas discussed in the programs. FoS students had much knowledge about the ecosystem and TC students were very concerned about their village solid waste problem and about how to solve it. Based on this study, and in addition to previous work on one-day field trips (Morag & Tal, 2012), we suggest that adequate preparation, subsequent reinforcement, first-hand experiences, and participatory interactions are key to the success of outdoor education. The findings imply that long-term programs are important for the development of positive attitudes toward nature conservation in general, but they also point to specific concerns of specific populations and to the possibility that different communities may take different paths to the development of pro-environmental attitudes. With respect to the gap between TC students' actual focus on trash in and around the village and INPA focus on nature conservation in the open space, we suggest that perhaps both the initial educational plan that reflected the concerns of INPA about illegal hunting and herb harvesting, and the facilitator's later focus on battery recycling, did not address the students' main concern. Working with the school, the municipality and the parents to improve residents' awareness of this issue might have gone farther toward producing a clean village and then a clean creek, and might have been a better way to begin the long road to conservation education.

We began this article by pointing to positive outcomes of outdoor education such as contextualization of learning, and applying theoretical knowledge in the field; promoting dialogue and interaction; building long-term memories; enhancing environmental attitudes and behavior; training in problem-solving and decision making within a real-world setting; and engaging cognitively and emotionally with environmental issues (Ash & Wells, 2006; Ballantyne & Packer, 2002; Falk & Dierking, 2000). We conclude by arguing that the two different long term programs responded to the above points. The students contextualized their learning (especially in FoS), and applied theoretical knowledge in the field. They had many opportunities to discuss and interact, and they developed their environmental awareness while being engaged in problem solving and action (the latter, only in FoS). Above all, they enjoyed being and learning in the outdoors, which can contribute to their lifelong learning.

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