Collaborative environmental projects in a multicultural society: working from within separate or mutual landscapes?

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Abstract A multicultural socio-environmental project that is framed in the ideas of education for sustainability brought together Jew and Arab students was investigated to identify the participants' views of the program's objectives and their accomplishments. We investigated the project's strengths and weaknesses according to the participants' views and the way culturally diverse students addressed the main local socio-environmental conflict related to conservation versus development of a local creek. The participants agreed that the environmental objectives were properly attained, while the social objectives were accomplished to a limited extent. All the participants emphasized the importance of multicultural knowledge and expected to learn and work together. We found different views of the Jewish and the Arab participants regarding expectations, collaboration and overall satisfaction, with higher expectations of the Arab students and leaders. The students' views of the local conflict varied but were not associated with their ethnic background. We suggest that the differences between the groups result from the different positions and needs of each community, and mainly as a consequence of the difficulties that the Arab minority faces in Israel. Overall, we found that the project allowed the expression of multiple voices of both groups, and suggested an applicable program for education for sustainability in a multicultural society.

Keywords Education for sustainability · Socio-environmental project · Multiculturalism · Socio-environmental conflict · Environmental education

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במחקר זה נבחן פרויקט סביבתי-חברתי שהתקיים בסביבה רב-תרבותית בישראל. הפרויקט נשען על גישת החינוך לקיימות. השתתפו בו תלמידי חטיבת ביניים יהודים וערבים, מורים, מנהלים ומדריכי ארגונים סביבתיים שהנחו את הפרויקט. המחקר בחן את תפיסות המשתתפים לגבי מטרות הפרויקט ומידת מימושן ונקודות החוזק והחולשה שלו. בנוסף בדק המחקר כיצד מתייחסים התלמידים לקונפליקט מקומי של שימור מול פיתוח בגן לאומי בישראל, אשר בו התקיים הפרויקט. כל המשתתפים הסכימו כי המטרות הסביבתיות של הפרויקט מומשו באופן משביע רצון ואילו המטרות החברתיות מומשו באופן חלקי בלבד. בנוסף, הדגישו המשתתפים את חשיבות ההיכרות החברתית הבינתרבותית וציפו ללמידה ועבודה משותפות במסגרת הפרויקט. ציפיות התלמידים היהודים והערבים מהפרויקט, רמת שיתוף הפעולה ומידת שביעות הרצון הכללית היו שונות. רמת הציפיות של המשתתפים הערבים מהפרויקט הייתה גבוהה יותר. תפיסות התלמידים ביחס לקונפליקט הסביבתי המקומי היה מגוון ללא קשר למגזר. ההבדלים שנמצאו בין קבוצות התלמידים נבעים ככל הנראה מהבדלים בצרכים ובמעמד החברתי שבין הקבוצות, ומשקפים קשיים אותם חווה האוכלוסייה הערבית בישראל כחברת מיעוט. ממצאי המחקר מלמדים כי הפרויקט הסביבתי-חברתי הווה הזדמנות נאותה לביטוי של נקודות ראיה שונות מצד המשתתפים והוא מהווה דוגמה ליישום החינוך לקיימות בחברה רב-תרבותית.

في هذا البحث تمّ فحص مشروع بيئي-اجتماعي أُجريَ في إطار مُتعدد الثقافات بإسرائيل. يَستند المشروع على مبدأ التثقيف من أجل الإستدامة. إشتركَ بالبحث طلاب عرب ويهود بالمرحلة الإعدادية. معلمون ومُدراء بالإضافة إلى مُرشدين من قبل جمعيات بيئية. خلال البحث تمّ فحص إدراك المُشتركين بالنسبة لأهداف المشروع. مدى تحقيق هذه الأهداف ونقاط الضعف والقوة الخاصة بالمشروع. بالإضافة إلى ذلك تمّ فحص تعامُل الطلاب مع صراع "الحفظ مقابل التطور" في متنزّه وطني حيث أجريَ البحث. جميع المُشتركين وافقوا على أنّ تحقيق الأهداف البيئية كان مُرضياً بينما تحقيق الأهداف الإجتماعية كان جزئياً. أكّد المُشتركون على أهمية التعارف الإجتماعي المُتعدد الثقافات وتوقّعوا حدوث تعلُّم وعمل مُشترك في نطاق المشروع. وُجد إختلاف في توقّعات الطلاب العرب واليهود بالنسبة للمشروع. للمشروع. لمدى التعاون خلال العمل وأيضاً لمدى الرضى من المشروع. مستوى توقّعات الطلاب العرب من المشروع كانت أعلى. إدراك الطلاب بالنسبة للصراع البيئي المحلي المُتنوع كان مُتنوع دون أي علاقة للقطاع عربي/يهودي. الفُروقات التي وُجدت بين الطلاب تتبُع على ما يبدو من فروقات بالإحتياجات وبالمركز الإجتماعي بين المجموعتين. هذه الفُروقات تعكس الصعوبات التي تواجه الأقلية العربية في إسرائيل. نتائج البحث تُشير الى أنَّ المشروع البيئي الاجتماعي شكّل قرصة مُناسبة للتعبير عن وجهات نظر مُختلفة ولذلك يُمكن إعتبار المشروع نموذج لتطبيق التثقيف من أجل الإستدامة في بيئة مُتعددة الثقافات.

The Israeli multicultural society consists of diverse backgrounds, nationalities, religions and communities, which often face social and political conflicts. Due to the small size of the highly populated country, these communities share very limited landscapes. The Jewish majority itself is divided between many origins and cultures—European, Asian and African, and between secular and religious communities, not to mention the difference between geographical communities. In the same way the Arab minority consists of diverse religious and ethnic communities such as Muslims, Christians, Druze, and Bedouins. These differences between the various Israeli communities are intensified by the conflict between Israel and the Arab states. This conflict has begun with the Jewish immigration to Israel at the beginning of the twentieth century and escalated in 1948 when the state of Israel was

established. The new political situation in the region created a situation in which the Palestinian people were divided into two entities: those who became Israeli citizens and those who became citizens of Jordan (West Bank) and Egypt (Gaza Strip) until 1967. Then, as a consequence of the 6 days War, the two Palestinian communities, the one within Israel and the other of the West Bank and Gaza Strip were able to interact with each other. However, they are still affiliated with either Israel, or with the Palestinian Authority that was established in the 1990s. This paper describes a project and a study that brought together Israeli Jews and Arabs (Palestinians who are Israeli citizens).

Acknowledging the fragile political situation, beginning in the 1970s the Israeli government addressed the need and importance of promoting co-existence between Jew and Arab citizens. It became widely understood that education could be a key for promoting pluralistic views among young people—the future citizens. Education for co-existence became a declarative goal of the national educational system, acknowledging that introducing and implementing multicultural tolerance is through actual and meaningful encounters of students, in both formal and informal settings. In the last decades, many Jew–Arab (both Israeli citizens) and Jew–Palestinian meetings and joint projects took place in schools and communities in order to face and discuss the cultural differences and the political conflict and to suggest strategies for coping with and bridging the gaps.

The environment is one of the preferred areas of Jew–Arab discussions, encounters and joint projects. Jews and Arabs share the same limited natural resources; they drink the same water, cultivate the same land, breath the same air and pollute the same. This situation is a good basis for real, relevant and meaningful discussion, and understanding that environmental issues can be addressed regardless of or with limited reference to the "big political conflict." It was widely accepted that raising awareness, care and involvement toward the shared environment could be beneficial to both groups, and discussing and acting together in the environmental arena, could be the launching point of other cultural-political discussions and actions. Consequently, environmental activism, as well as environmental education became a preferred field of collaboration among communities.

Local and regional endeavors that address the social as well as the environmental aspects have already encouraged the development of relationships among communities through the process of social-environmental-political discourse (Bonnett 2006). These efforts suggest that education for sustainable development could be the suitable framework for such projects and programs. The environmental project we investigated and described in this article is based on an education for sustainability (EfS) framework that takes in account socio-political and environmental considerations (Stevenson 2006).

As a result of the increase in environmental awareness of all communities, in recent years, many Environmental Education (EE) programs take place in the region in both formal and informal education systems. These programs involve national and local governmental (GO) and non-governmental (NGO) environmental organizations. The program, which is the focus of this article, took place in the Zalmon Creek Nature Park. The park is managed by the Israeli Nature and National Parks Protection Authority (INPA) that initiated the project. INPA aimed at working with Jew and Arab youth to promote awareness of a regional conflict and its resolution. The two groups of students came from a Jewish school and an Arab school. These groups met eight times to study an environmental conflict in the nearby nature park Zalmon Creek. The project, which is described in detail in the next sections consisted of in-school and out-of-school activities, and involved staff of two environmental organizations.

Although environmental education programs that involve students and community members became more common in the last decade in Israel, they are not documented and

studied enough. Multicultural-environmental programs that engage diverse communities, such as Jews and Arabs, were not investigated at all.

Such programs are promising for several reasons: they focus on commonalities rather than on differences, but they do not ignore emerging conflicts; they contribute both to education for sustainability (ESD), and to education for peace and co-existence; a suitable pedagogical approach could strengthen positive Jew and Arab students' attitudes toward the environment and toward each other; finally, participation in multicultural-environmental programs could empower the students' and the community's involvement in the local environment with respect to the diverse needs of the neighboring communities.

Our goals were to identify the characteristics of a unique short term multicultural socio-environmental program (referred to in the sequel as socio-environmental project) that brings together Jew and Arab participants; follow-up the interactions between the participants and investigate their environmental and social views. Following a pilot study, in which the participants referred to the gaps between their expectations and the enacted project, but acknowledged their enhanced environmental awareness, the more detailed questions that directed us were:

1. How do the project's participants—students and adults—perceive the socio-environmental project's objectives and their attainment?
2. How do these participants explain the project's strengths and weaknesses?
3. In what ways, do the students from both communities view the local environmental conflict?

To frame our study of socio-environmental programs in a multicultural society, we have to acknowledge the great number of influences on such programs. These include EE, and to be more specific, ESD; outdoor learning; place-based education; community-based projects; multicultural education in general, and specific research on Arab–Jew cultural and political encounters in Israel. Acknowledging the limited scope of this paper, we are able only to abruptly address and tie these issues to present the complex learning environment, which is at the background of the study. We suggest that although the context is local, our study could inform other efforts to bridge conflicting societies worldwide. To emphasize this point, we would quote one of our interviewers who stated that "if such a project happens here, with all the conflicts and the nuances, others can be conducted anywhere, in any divided society".

Environmental education, education for sustainable development, place-based education and outdoor education

Environmental education (EE) appeared as a new field in the 1960s as a result of the acknowledgement of the environmental crisis. It evolved aiming to produce a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp et al. 1969). In its early formulations, the aims of EE were often concerned with stimulating a sense of individual responsibility for the environment, based on explicit general ecological principles, understanding of the impact of human society on the biosphere, and an awareness of the problems inherent in the environmental change (Gough 2002). EE, in its traditional form did not address complex social issues that affect the ways individuals and communities live within their environment. In Israel, for example, environmental organizations ignored, for many years the complex and fragile relationships

between the Arab minority and the Jewish state. Nowadays, many new organizations adopt the framework of education for sustainability to address the social and political issues that are associated with the environment.

Education for Sustainability (EfS) examines and emphasizes more closely the origins and sources of current problems and aims at providing a new vision of education that seeks to empower people of all ages and communities to assume responsibility for creating a sustainable future (UNESCO 2002). Scholars who argue for adopting the framework of EfS claim that education with the objective of achieving sustainability varies from previous approaches to environmental education in that it focuses more sharply on developing closer links between ecology and socio-economics (Fien 1997). EfS and ESD focus more upon support for universal basic education and emphasize social development including human rights, governance and social justice, and suggest a more balanced approach to addressing the dilemma of both the environment and society's need for quality of life (Tilbury 1995). In this study, we adopted the EfS framework for it highlights the issues brought up and the goals expressed by all the participants in the project. Moreover, we believe that the complexity and the multi-faceted nature of EfS ideas demand a more situated learning that can take place if students are provided with methods to reconstruct their own social and scientific knowledge (Bishop and Scott 1998), and if they get to do it in the appropriate environment—the nearby creek. Therefore, the educational project is place-based education as well (Gruenewald 2003). The Arab students and teachers perceived the creek as their back yard, many Jewish students knew it very well, and both groups of students expressed strong feelings with regard to the creek's future. Furthermore, INPA plans longer term educational programs only to schools that are in proximity to the sites where the program takes place, and only with regard to socio-environmental problems that the students can become part of their resolution.

As the project we studied focused on an environmental conflict, which is addressed by a unique mediation process, the students who learned about the conflict were engaged in *environmental education*. Given that the conflict involved social and political issues such as the relationships between Jews and (Bedouin) Arabs in the Galilee, the changes in the way of life of the Bedouin minority and nature conservation and development in rural areas, we employed the framework of *EfS*. For the multicultural project took place where the students of both communities lived, and many perceived Zalmon Creek as their back yard, the project can be seen as *place-based education* as well.

The multicultural society of the Galilee

The Galilee region in north Israel is characterized by moderate Mediterranean climate, beautiful mountains, hills and narrow valleys. In its long history, the region was inhabited by Jews, Christians and Arabs. In 1948, when the state of Israel was established, the Galilee was inhabited by Arabs, and nowadays, the Arabs are still the majority (in the region where the study took place the Arab/Jew ratio is almost 2:1).

The Arab population consists of a majority of Muslim Arabs, smaller communities within mixed villages, a few separated villages of Christian Arabs, and villages of Druze (a small religion, which separated from Islam in the eleventh century) who live as well in mixed villages (with Muslims and Christians). Amongst all these villages, there were the Bedouins; in the past—nomad Arab tribes that moved from one place to another, according to availability of resources. One of the results of the establishment of Israel was growing pressure on the Bedouins to settle in organized villages, in which the state could provide

them with necessary services such as schools, health and municipal services. This political pressure succeeded, and nowadays most of the Bedouins in the Galilee live in recognized villages, whereas a minority still lives in very small tribal communities (not nomadic any more), which are not recognized by the state authorities that define them as illegal, and therefore they do not get proper services. The Arab citizens of Israel are divided between a majority that does not serve in the Israeli Army (Muslims and Christians) and the Druze who agreed to mandatory service, and the Bedouins who can choose to serve. This distinction is very important politically and socially, since several rights that have economic consequences are associated with army service. It is important as well as the army service creates conflicts within the Arab speaking population of Israel (between the minority that serves and the majority that does not serve).

In addition to their unique situation as a minority within the Muslim Arabs, due to the historical circumstances, the Bedouins are recognized by having the lowest socio-economic status within the Arab citizens of Israel. As such, it is no surprise that they address environmental issues differently than their middle class Jewish neighbors. Consequently, it is reasonable to expect that the initial environmental awareness and behavior of the Bedouin students would be different than those of the Jewish students.

The Jewish community of this region of the Galilee consists of a central city that was established in the 1960s, a large number of rather small affluent communities that were established in the 1980s by people who came from the large urban areas of the country seeking good education, quality of life, and active community life, and a smaller number of farming communities. Overall, the region is a mosaic of communities, religions, cultures and histories which make it tremendously interesting, but very complex. Many socio-political problems are associated with the Galilee as well as many socio-economical innovative efforts that address the diversity and aim at bridging social differences.

Environmental perceptions in a multicultural society

Insufficient and conflicting evidence regarding ethnic differences exist with regard to the environment and environmentalism. Often, this situation is a result of the methodology researchers employ. For example, in a study that examined Blacks and Whites' environmentalism, researchers did not find clear differences in the subjects' perceptions and action (Dietz et al. 1998). However, in an attempt to use the same instrument in an examination of the convergence of ethnic diversity and environmentalism, Johnson et al. (2004) showed that Blacks and foreign-born Latinos were less likely than Whites to score higher on the New Environmental Paradigm (NEP) scale they used. Any behavioral differences between Whites and the respective minority groups (in the USA) were expected to diminish with the inclusion of the NEP as an intervening variable in the model between ethnicity and behavior. However, ethnic differences remained stable and strong even when environmental belief was added. Overall, it was found that Asian American and US-born Latino environmentalism was most similar to Whites, while African American concern and behavior was least similar to White environmentalism.

In Australia, Leung and Rice (2002) who used the NEP survey found that Chinese–Australians and Anglo–Australians differed in their environmental concern and their endorsement of NEP values. The results also suggested that overall, environmental behavior was related to environmental concern, which was in turn related to NEP values. Although the cultural validity of NEP surveys is questionable, studies that used other methods supported this pattern as well. In New Zealand, Milfont et al. (2006) who used an

environmental motives scale claimed that European New Zealanders are likely to have more individualistic values and might have higher egoistic concerns and behavior whereas Asian New Zealanders are likely to indicate more collectivist values and may have altruistic concerns and behavior. Following a comprehensive study that used a variety of methods, in the Asian–Pacific region, Yencken (2002) claimed that attitudes to nature in Eastern and Western cultures have different histories and concerns and that environmentalism in poor and rich countries has different trajectories as well. In poor countries environmentalism and ecological justice are often closely aligned, while in rich countries two main influences exist: biocentrism, stemming from John Muir's legacy and a sustainable development view which was influenced by Gifford Pinchot's attitude to conservation.

An example of differences, rooted in different socio-political situation in the same ethnic group came from Germany, where the unification of Western and Eastern Germany in the 1990s caused numerous conflicts yielded by merging of considerable different approaches to the environment. The wealthier population of Western Germany had great environmental awareness, while in poor Eastern Germany there was little awareness and concern for environmental problems. The unification highlighted the different attention and priorities in the different parts of Germany (Schleicher 1994). Taylor (1989) suggested that several factors influence the existence of an action gap between poor and wealthy and between different ethnicities: level and type of affiliation with voluntary associations, political efficacy, recognition of advocacy channels, access, acquisition of social prerequisites, psychological factors, collective action, and resource mobilization.

In the context of this study, we believe that there are many similarities between unprivileged urban minority communities in the United States and the Arab minority communities in Israel. This is despite the fact that American researchers who address margin and center in science education usually refer to minorities in urban settings, while we refer to the marginalized Arab population of the country that lives mainly in the more remote regions. The Arab minority faces issues of civil rights, poverty and overcrowded and poorly equipped school and classrooms. Within the Arab population in Israel, the Bedouins are marginalized and the most socialy excluded because of their low socio-economic status.

Multiculturalism, multicultural education and multicultural science education

The participants in our study came from different ethnic groups which both shared Israeli citizenship—Hebrew speaking Jews and Arab speaking Muslim-Bedouins who live in the same region only a few kilometers apart. Since the project we studied integrated these different populations, we refer to it as multicultural.

Multiculturalism as an ideology, a belief, a perspective or a policy was identified by UNESCO as:

> …comprises mainly three different meanings. In its demographic-descriptive meaning it refers to the fact of cultural or ethnic diversity, in its ideological-normative sense it applies to philosophical arguments underlining the legitimacy of claims to the recognition of particular identity groups, and in its programmatic-political sense it pertains to policies designed to respond to the problems posed by diversity (Inglis 1996, pp. 15–18).

In the socio-political context, multiculturalism refers mostly to the institutional policy that endeavors to consider cultural and ethnic diversity, with educational, linguistic, economic and social components and specific institutional mechanisms including human rights (UNESCO 1995). Multiculturalism as an official policy started in Canada and Australia in the 1970s and was adopted by most member states of the European Union countries and in English-speaking countries.

Multicultural education that has many perspectives is one of the important subjects in implementing the policy of multiculturalism. Gibson (1976) who was one of the first to use the term multicultural education suggested its four approaches: acknowledging the existence of cultural diversity but assimilating within the central cultural flow; focusing on cultural differences to improve multicultural understanding; multicultural pluralistic education that reinforces ethnic groups and minorities; and intercultural education to prepare students from both cultures to succeed both in the dominant and minor cultures.

Processes of globalization brought about a significant rise in the number of diverse-cultural schools and an increase in the number of students from different ethnic cultures that share the same class. The diversity of cultural background brings a different set of traditions, beliefs and values into the same class, which require teachers to cross cultural borders to enculturate all students into school life (Aikenhead 1996).

In 2000, NSTA adopted five principles for Multicultural Science Education: having education programs that enable children from all cultures a positive self-concept; equal opportunities of scientific experiences and knowledge to all children to become successful participants in a democratic society; suitable curricular content that incorporates many cultures' contributions to scientific knowledge; teachers knowledge about and implementation of culturally-related teaching and learning methods and practices; responsibility of teachers to give culturally-diverse children opportunities to pursue scientific and technological career; and using instructional strategies that respect and recognize differences in cultures (NSTA 2000).

Multiculturalism in education in general and in science education in particular usually refers to culturally-diverse classes or schools. However, in Israel, the vast majority of the schools are segregated into either Jewish or Arab and therefore, the project we studied involved students and teachers from different mono-culture schools. These students had different religions, spoke different languages, and lived in separate communities that often experienced social and political disagreements.

Arab–Jew cultural and political encounters in Israel

For the past three decades, many social and educational Arab–Jew encounters of students and adults took place in Israel in order to discuss political and social issues, enable a continuous dialog between the two communities and promote coexistence. The characteristics of these encounters were studied, focusing on relationships and interactions (Maoz et al. 2002). Maoz (2004) evaluated inter-group contact interventions of 47 Arab–Jew encounter programs that took place during 1999–2000 and involved participants ranged from preschool children to adults. Programs were classified into two major approaches—those that emphasized coexistence and similarities and those that focused on the conflict and confrontation. In fact, Maoz found a better alignment in active participation of Jews and Arabs in the confrontational type of meetings. Hertz-Lazarowitz (2004) summarized the broad influences of a 5-year action research project on systemic change toward coexistence in Akko, a mixed Arab–Jewish city in Israel. At the end of the project that

encountered schools, school-families and the city educational and political leaders' meetings, all the participants felt empowered and proactive regarding coexistence. They believed that coexistence became part of the daily city life politically as well educationally.[1]

Despite much research on Israeli–Jews and Arab–Palestinian encounters that examined the two conflicting societies, only one study dealt with environmental issues. In the study that explored and summarized the characteristics of environmental cooperation of 16 Israeli and 12 Palestinian environmental NGOs, the researchers found that whereas both sides agreed to cooperate in environmental work, their motives were completely different. Palestinian NGOs tended to cooperate mainly to prevent further environmental hazards, whereas Israeli NGOs viewed the joint environmental work as a bridge to promote peace. In addition, Palestinian NGOs held the Israeli authorities and the political conflict responsible for the environmental problems in their surroundings, whereas Israeli NGO's discourse disconnected the political and the environmental problems. It was concluded that asymmetric power relationships yielded the great differences in the environmental narratives of both sides (Chatini et al. 2002).

The project's context and participants

As indicated earlier, the population of the Galilee region in northern Israel is very diverse. Many ethnic groups and communities live closely and sometimes together with each other—Jews, Christian Arabs, Muslim Arabs, Bedouins, and Druze.

As a result of the increase in environmental awareness of all communities, in recent years, many EE programs take place in the region in both formal and informal education systems. These programs involve national and local GO and NGO environmental organizations.

The program, which is the focus of this article, took place in the Zalmon Creek Nature Park, managed by the INPA. INPA was the leading environmental organization in the project. The other organization was "LINK to the Environment" (referred to in the sequel as LINK), a local collaborative Jewish–Arab NGO. Unlike LINK, which is a Jew–Arab collaborative organization, INPA, as a governmental agency, could be seen as an external imposing power. This issue is further addressed.

The participants in the project and the study included: (a) 70 Jew and Arab eighth graders from two public middle schools. The Hebrew speaking students came from a number of small communities of middle-high socio economic status (SES), and the Arab students came from two low SES Bedouin villages near the park. Both Jewish and Arab villages belong to the same regional council; (b) Eight adults: two homeroom teachers of both classes (one Arab and one Jewish), two principals—of both schools, three INPA staff members: a coordinator and two mentors: one for the Hebrew speaking students and one for the Arabic speaking students and one mentor from LINK, the local NGO.

The program took place in the school year of 2005–2006. INPA staff used the term project as it was a short term program that took place mainly in the outdoors. The project consisted of eight whole school day sessions comprised of twelve activities: nine mutual activities of both groups and three separate activities for each group. All the activities were designed based on sociocultural principles, included hands-on experiences and took place

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[1] In fact, in 2008, intra communal riots in Akko occurred in a mixed Jewish–Arab neighborhood during the Jewish holiday of Yom Kippur.

either in the schools or in the outdoors, in Zalmon Creek. The first, fourth and seventh sessions were held separately in each school. In these sessions, the students learned about the characteristics of Zalmon creek, its problems and about the environmental mediation. The reason for separating the groups was to allow the students to learn in their own language (i.e., Arabic or Hebrew). Out of the five mutual sessions, three were held in Zalmon creek, one took place in a public park, one was in the Jewish school and one in the Bedouin village and school. In the creek, the students hiked together, learned about its problems and met with the creek residents. In the park, the students learned about ecological principles and had a social activity in which they experienced "field cooking," and in the two schools, they had the opportunity to learn about each other's community and habits (for more details see Table 1). It is important to note that some activities were focused on learning about the dispute while others were more social and aimed at getting to know each other. In the mutual activities, INPA facilitators made an effort to use both languages, but it is important to note that although Jewish middle school students have mandatory Arabic class, they are rarely fluent in Arabic, whereas in Arab schools, Hebrew, which is the main language of the country, is studied beginning from second grade. One encounter, in which all the students were supposed to do real work such as building terraces and a new trail in the nature-park was canceled because there was no permit for

Table 1 The project's structure: meeting, topics and settings

	Topic	Place	Activities
1	Introduction—presenting the project's goals; Zalmon Creek's characteristics; and preparing for the first mutual meeting	Jewish and Arab schools (separately)	Discussion
	First meeting: meeting and introducing each other	Arab school	Social games
2	The magic creek's secret—introducing the rich biodiversity, water resources and the conservation versus development problems of the creek	Zalmon Creek	Treasure-hunt game
	(continuing) Learning to know "the neighbors"	A public park	Sports games
3	Visiting and learning about the Jewish school daily life, presenting previous schools' environmental projects: solid-waste art and ornamental pond	The Jewish school and its surroundings	Tasks game about school customs, surrounding and characters
	Learning about environmental principles in a local ecological garden and social meeting	A regional ecological garden	Lecture, field cooking
4	Learning about mediation principles and simulating the environmental mediation process in the valley by raising all parties' interests and stands	Jewish and Arab schools (separately)	Lecture, discussion, expert group work
5	Visiting a traditional Bedouin tent and learning about Bedouin culture and customs	The Bedouin village	Visiting an exhibit, a lecture, singing
	Visiting the valley residents, learning about their positions regarding the dispute; experiencing wood carving (workshop)	Valley resident's workshop	Hands-on, creative
6	Meetings and interviewing the participants of the mediation	The valley	Interviews, discussions
7	Students' reflective discussions about the projects' goals and their accomplishment	Jewish and Arab schools (separately)	Discussion, filling up questionnaires
8	Final meeting—ceremony, summary and a festival	The valley	Hands-on, singing, dancing

any development project at that time. This cancelation was very disappointing and was highly criticized by the students.

Zalmon creek: the dispute and mediation

Zalmon Creek National Park is located in the Galilee, in northern Israel. The official decidation of the national park was in 2005. The 1,000 acres park includes a flowing stream, rich Mediterranean biodiversity, remains of ancient agriculture, water operated flour mills and an aqueduct—all from the Roman, Byzantine and Early Arab periods. The stream is one of the few perennial and clean streams in northern Israel. In the past, the water flew freely; eventually reaching the Sea of Galilee, but nowadays, most of the water is pumped and transferred to towns and villages in the region. Some of the water still flows in the natural creek and irrigates small terraces.

Nowadays, a Bedouin-Muslim village, located outside the park, with a population of 3,000 and a small mixed Bedouin–Christian village with a population of about 200–300 occupy the valley. The cultivated lands of the smaller village are at the margins of the national park while the houses are right on its border. Two enlarged families populate and own lands within the more sensitive part of the park—one is a 100-people Christian–Arab family and the other is a 50-people Bedouin family. These inhabitants, who have farmed the land for more than 100 years, stand in the middle of the continuous environmental dispute between INPA and the residents of the creek.

Since the governmental authorities had never approved the residents' rights to build houses and cultivate the land in what was eventually declared as a national park, the residents do not receive basic services from the authorities and are not connected to central electricity, water and sewage systems. This was in attempt to encourage them to leave the creek and settle in the nearby village. Furthermore, because officially, the buildings are illegal, they were subject to destruction orders. During the last 15 years a distrustful relationship exists between Zalmon Valley residents and INPA which is the law enforcing agency with regard to land use in nature parks.

Declaring Zalmon Valley a national park increased the land owners' concerns about their houses and their land ownership status, and escalated their feelings of intimidation. On the other hand, INPA could not promote the national park development programs as long as the park residents resist moving into the neighboring village or get an official governmental permit to stay where they were. Meanwhile, the environmental damage to Zalmon Valley continued as the park residents kept exploiting the creek resources with no regulation by turning the original water flow away, into the cultivated lands and appended more land than they originally owned by cultivating natural habitats. The fact that the creek residents are Arabs contributed to the complexity as they view INPA actions as just another social injustice caused by the government and the Jewish majority, and an attempt to harm their inheritance rights.

After 15 years of an unsolved dispute, the Joint Environmental Mediation Service (JEMS) and the local collaborative Jew–Arab NGO 'LINK' offered the parties to use the environmental mediation process as an appropriate way to solve the dispute. For the first time in Israel, a unique mediation process began as a consensus building process in order to manage and settle a multi-cultural, multi-issue and multi-party environmental conflict.

> Mediation is a process in which those involved in a dispute jointly explore and
> reconcile their differences. The mediator has no authority to impose a settlement. His

or her strength lies in the ability to assist the parties in settling their own differences. The mediated dispute is settled when the parties themselves reach what they consider to be a workable solution (Cormick 1982, p. 1).

In a mediation process the parties negotiate in order to reach a consensus and settle their disagreements. During negotiation, different stands and interests are presented and several solutions are discussed until an appropriate and acceptable resolution is accomplished.

Many interested parties were involved in the environmental mediation process in Zalmon Valley: land owners who live inside and near the national park; neighbor communities from the nearby villages; local councils; governmental agencies; and NGOs. After over 2 years of negotiation, carried out by three (local and international) institutes, the parties reached an agreement. In June 2004, the first environmental mediation settlement in Israel that involved both residence and governmental ministries was signed.

The main issues of agreement were: (1) nature, landscape and human heritage values will be preserved in the park; (2) National Park development programs will involve the park residents and the neighbor communities in order to create sustained collaboration for nature preservation; (3) land ownership and the houses will be officially legalized by the authorities. Existing houses and property would become legal and construction rights and limitations would be clarified; new construction would not be allowed and future building would be in the neighbor village; (4) park residents could keep cultivating their lands; (5) park residents would be prioritized while considering and opening businesses within the park and would be preferred as INPA local employees in the national park; (6) park residents and neighbor communities would have free access to the national park and walking visitors could pass through their private lands on signed walkways.

Since the agreement was signed there has been some progress in its implementation: programs were statutory confirmed and joint park management that represents all parties was established. Nevertheless, a few problems that prevent full implementation still exist: the Local Planning and Building Committee did not yet confirm the development programs for the national park, so construction in the park is delayed, and the confirmation of the residents' rights is not yet completed.

Data collection and analysis

As the project combined scientific, social and cultural aspects, involved personal views and relationships between two cultural groups, and had so many idiosyncratic features we could hardly depend on existing frameworks for data analysis. Consequently, although the substantial research on environmentalism and multiculturalism was at the background of our interpretation, the main corpus of data was inductively analyzed. This was in line with the shift in EE research towards more constructivists, interpretative, critical and other non-positivistic approaches (Hart 2000). In general, this transition allows answering more comprehensive and idiosyncratic research questions, and employing a larger set of methodologies. In particular, we followed calls for new methodological approaches in EE research that would allow broadening the research field and include in- and outdoors learning and social and community aspects. In this primarily interpretative study we collected data using individual and group interviews and open-ended questionnaires. Iris, the co-author was a teacher at the Jewish school who took part, as a teacher, in a previous project. At the year of the study, she was no longer a teacher, and therefore, she could be a

participant observer in all the activities. She did not take part in decision making, but she freely interacted with both adults and students and held many informal conversations during the more informal meetings. It is worth noting that both researchers live in the Galilee and believe that encounters of Jews and Arabs could contribute to co-existence and social justice. Both of us are engaged in pre- and in-service programs of Jew and Arab teachers, mainly in the field of environmental education.

The data were collected through:

Semi-structured interviews with the eight adult participants were held prior to and at the end of the project. The four mentors of the environmental organizations, two teachers and two principals provided their views of the project's contributions and successes (strengths) and its challenges and limitations (weaknesses) and of the extent to which the project's objectives were accomplished. The categories for analyzing the data emerged from the interview transcripts. Initially, we noticed that the interviewees addressed environmental and sociocultural domains. Then, we were able to identify sub-categories in each domain and assess the extent to which each participant addressed these sub-categories such as knowledge and understanding of the conflict (environmental domain), positive multicultural experience (sociocultural domain) and collaborating with diverse organizations (organization, planning and teaching domain). The organizational domain, which was evident in the post-project responses was added in a later stage.

Focus group interviews were conducted prior to and at the end of the project with 16 students from each school. These interviews helped understanding the socio-environmental views of the students regarding the project's objectives and its varied impacts. Each interview group consisted of 4–10 students. The reason for having focus groups was based on (1) the ability of the group to diagnose difficulties in implementing educational projects (Krueger 1988); (2) their potential in providing rich data obtained through interactions among the group members (Fontana and Frey 2000); (3) their appropriateness as a research instrument in multicultural settings where the participants struggle with language and cultural difficulties (Patton 1990).

The students were selected based on (1) our request for students who are talkative and good informants regardless of their academic achievements; and (2) our selection of students who provided detailed responses in the pre-project questionnaires, assuming that they would be good informants. All the interviews were transcribed verbatim, and repeating themes were identified and interpreted.

Open-ended questionnaires were filled out by the 35 Arab students and the 35 Jewish students. The open ended questionnaires were administered at the beginning (pre) and after final meeting (post) of the project. The questions addressed the objectives and their accomplishment, the students' expectations and their fulfillment, their learning, feedback and suggestions for future projects. Content validation of the questionnaire was employed by two science educators who knew the region, the conflict and the communities. Based on their review, a few items were removed and others were reworded.

The original Hebrew version was translated into Arabic by two Arab environmental educators. Then, two Arabic teachers from the Hebrew school individually back-translated the questions to Hebrew. Finally, an Arab teacher who is fluent Hebrew speaker chose the most suitable translation (regarding wording) for the students and the co-author approved that the original and the chosen back-translated versions fit. Students' responses in Arabic were translated to Hebrew by an (Arab) environmental education teacher. In the analysis of the written responses, we highlighted and counted repeating statements and ideas.

Adult participants' expectations and their accomplishment

The data for questions 1 and 2 were gathered from individual interviews with all the adult participants: four mentors, two teachers and two principals. According to the objectives/ expectations they referred to, and to the number of times they addressed each expectation, we found two domains: the environmental and the sociocultural. In the environmental domain, gaining knowledge and understanding of the conflict and the mediation process was the main expectation of INPA staff and the Jewish principal.

> The idea was taking this project and telling the students—your neighbors, your parents, friends and community are in a midst of a conflict or a crisis, and we approach it in a unique way, which is mediation, so the goal is to lead the students into this way of thinking. First, understanding the challenge, and then to step into the shoes of the parties… (INPA coordinator)

The objective of learning about the socio-environmental system and being aware of nature conservation was raised as a main objective by the Arab teacher and principal, by LINK and by the one of INPA mentors.

> I don't thing awareness exists, for example, the water. I think a clean river is a resource. I don't know if it recycles, what happens with it. This is an open space as well, the whole thing of preserving open spaces, and the organisms, awareness to natural resources (LINK mentor)

These two objectives were highly attained according to the post project interviews. Other objectives such as meeting the valley residents, taking a stand, encouraging care and ownerships and meaningful outdoor learning were indicated only by one or two participants, and to a lesser extent compared to the main objectives. In the sociocultural domain, the two main objectives were: (a) having multicultural encounters, getting to know and collaborate with each other, and (b) having collaborative hands-on activities.

> (a) …actually, we decided to deal with an environmental issue, but by that, to meet population we don't know. This means you have to have enough time for meeting and knowing each other, and this does not begin with the environment. It begins from social meetings. This is a 'price' but you have to pay it… (Jewish principal)
> (b) I knew that in such meetings old (mis) conceptions are changed…like we're Arabs, they're Jews, we're like apart. There are many barriers. Afterwards I knew that the project helps knowing, getting closer, and doing it in a young age (Arab teacher)

From the post-project interviews it appeared that first objective was partially attained, and the second was not attained at all. Other objectives that were indicated by fewer participants to a lesser extent were: making friendships, promoting co-existence and reducing prejudice, mutual learning about the heritage and way of life of others, discussing the political conflict, and implementing mediation in everyday life.

While all the participants agreed that the environmental objectives they have raised were properly attained, the social objectives were partially or not at all accomplished. In general, the more the goal was cognitive oriented (learning about…), the better it was attained.

In addition to how the participants viewed the objectives and their attainment, after the projected has ended, we asked about its strengths and weaknesses.

Only one advantage was indicated by most participants in the environmental domain, which was in accord with the first objective: gaining knowledge and understanding of the conflict and the mediation process. All the other strengths such as "focusing on the environment as a challenge for multicultural learning" and "collaboration with various organizations" were mentioned by only one or two interviewees. Overall, INPA and LINK mentors indicated more positive outcomes than the teachers and principals.

There was better agreement about the flaws of the project, which were identified only in the sociocultural domain. The main drawback that was addressed by all the interviewees was the lack of collaborative hands-on activities in the valley. There was agreement that different views of Jewish and Arab students regarding collaboration and satisfaction affected the work. This could have been the result of limited knowledge of and collaboration with the other group, and a consequence of language and cultural difficulties during meetings and activities, which was indicated by most of the subjects.

The Arab teacher and principal, who did not find any strong point in the environmental domain, indicated the project had limited impact on environmental behavior. In the sociocultural domain, there were opposite opinions of the Arab and the Jewish teachers. While the Arab teacher found many strong points in the sociocultural domain, the Jewish teacher thought it was the weakest domain. The four environmental educators were dissatisfied with and criticized the sociocultural aspects of the project. To summarize, the main strengths were learning about the conflict, focusing on the environment as a mutual, cross-cultural interest, having cross-cultural meetings, and having a peak day in the park. The main weaknesses were identified in the social domain: no actual work in the creek, limited communication and collaboration of students in the two groups.

About half of the interviewees addressed language difficulties and cultural differences as limitations. The main reference to and criticism with regard to the organization and pedagogy was expressed by the mentors and coordinators of INPA who were the more active leaders. The limited influence of the project on the environmental behavior of the students and the community as was perceived by the Arab teacher and principal reflected their expectation that the project will have an immediate effect on the environmental behavior beyond the school yard. This finding contradicts the Arab teacher's statement about the good attainment of environmental objectives. It is interesting that the cross-cultural encounters were identified as a strength as well as a weakness. Basically, such encounters that focus on environmental issues are important, but there were barriers in communication and full collaboration was not attained. Similarly, participation of a number of organizations had advantages as well as disadvantages, and the adaptation of the particular type of project to a multicultural audience was controversial. There were some differences with regard to the participants' roles (environmentalists and school staffs) and between the representatives of the different ethnic groups. All these aspects emphasize the complex nature of the project and the gap between declarations and expectations and their accomplishment.

Students' perceptions of the project's objectives and their attainment

In order to address the students' expectations and feedback we administered pre-post open ended questionnaires and carried out focus group interviews with 16 students from each group.
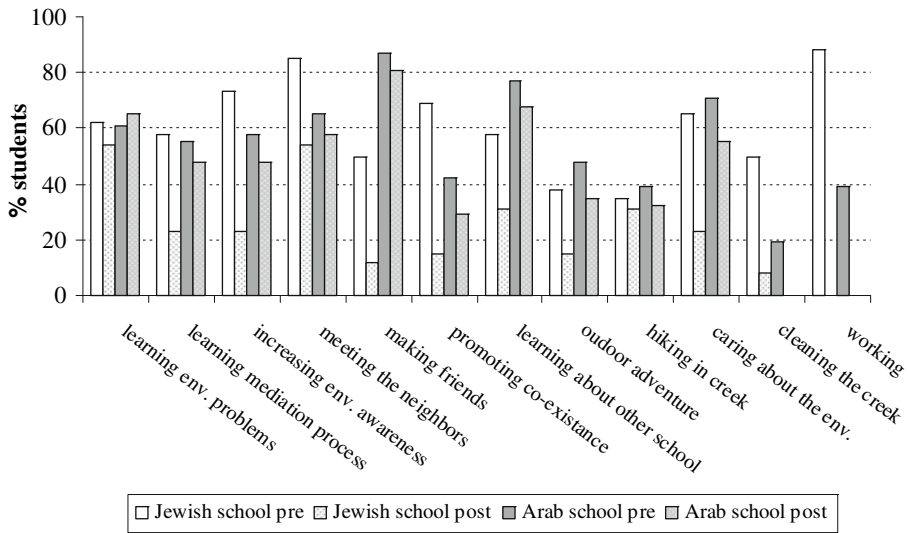
Fig. 1 Students' views of the project's objectives and their attainment

Based on the written responses of the 70 students, Fig. 1 presents the distribution of objectives by the students from the two communities before the project has began and their perceptions of the extent these objectives were attained at the end of the project.

In general, the students from both communities had rather high expectations:

- to learn about the creek and its problems
  "I am expecting to learn about the creek and its problems"
  "…to know the creek and the conflicts"
- to practice the other language
  "I will learn better Hebrew"
- to enjoy, and have pleasant feelings
  "…that we'll feel good together and would not feel uncomfortable because our different religions, and together improve the environment"
  "to make friendships with Bedouin kids and enjoy the joint project"
- to know each other's lives and communities, and to contribute to the environment and the society
  "Get to know each other and contribute to the environment"
  "promote Jew-Arab relationships"
  "I expect co-existence of Jews and Arabs"
- to work together for the benefit of the environment
- "I expected that we do actual work in the creek"
- "I thought that building something would be nice"

Even the outdoor adventures and the hike the students were not very enthusiastic about were pointed out by 35–40% of the students. Figure 1 shows higher expectation of Jewish students for getting to know the Arab students (meeting the neighbors), but lesser expectation for real, new friendships. It seems that they were interested in their neighbors, and were looking forward to interact with them, and promote co-existence, but did

not expect to make real and sustained friendships. Arab students, on the other hand, wanted to make friendships and learn about the other school, but did not specifically refer to the more abstract idea of co-existence. They cared less about promoting environmental awareness, and were much less interested in working in the creek. Nevertheless, they wanted to clean it and expected to "care for the environment." Jewish students were enthusiastic about physical work in the creek, wanted to promote environmental awareness and supported the idea of co-existence. The two groups showed similar interest in learning about the environment and the mediation process, and in hiking and caring for the environment.

Figure 1 clearly indicates that the Jewish students were much less satisfied with the accomplishment of their objectives. Except for "learning about the environment" and "hiking" that remained stable, all the other objectives seemed unaccomplished. Although the bars representing the Arab students' views at the end of the project are a little shorter compared with its beginning, overall most of their expectations were fulfilled. It is worth noting that both groups did not mark "working" in the post-questionnaire, and only a few Jewish students marked "cleaning up the creek" for the objective of doing actual work in the creek was not accomplished at all due to a warrant that stopped and prevented any development project in the park. This was a main point of disappointment for the students in general, and for the Jewish students, who highly expressed their critique with this matter, in particular.

Similar to the adults, in the group interviews, the students were requested to address the project's strengths and weaknesses. Table 2 presents the students' views regarding the strengths and the weaknesses of the project. The asterisks refer to the number of students who addressed each strength or weakness.

Overall, the Jewish students addressed more aspects than their Arab mates (7 vs. 4 strengths; 10 vs. 3 weaknesses, respectively). In the environmental domain, most of the Jewish students positively addressed gaining knowledge, understanding the conflict and the mediation process and taking a stand. Similarly, the Arab students positively addressed learning about the conflict and the mediation, and to raising the awareness to nature conservation. The Jewish students referred to learning about the conflict and the mediation as a strength as well as a weakness, meaning they learned about the issues but not enough. They also claimed that the project did not change their environmental awareness. In the social domain, we found similar positive responses to mutual learning about each others' culture, to promoting co-existence and to collaborative hands-on activities. On the down side, the students from both groups referred to the limited actual collaborative work, limited interaction between groups and to difficulties in communicating and understanding each other. The Jewish students addressed the different expectations of the groups as limitation as well. In the organizational domain, only the Jewish students have critically addressed the vague plan of the entire project.

Another way to look at the students' feedback was examining their answers to the questionnaire item: "would you recommend your friend to take part in the project next year?" As shown in Table 3 there were substantial differences between the groups.

The vast majority of the Arab students recommended continuing the project due to its environmental and social contribution, while only about half of the Jewish students recommended participating in the project, and this is only if there would be actual work in the creek and better social engagement. This judgment supports the picture already obtained regarding the difference between the groups.

Table 2 The students' perceptions of the project's strengths and weaknesses

Aspects	Strengths		Weaknesses	
	JS (N = 8)	AS (N = 8)	JS (N = 8)	AS (N = 8)
Environmental				
1. Knowledge and understanding of the conflict	***			
2. Taking a stand towards the conflict	**			
3. Knowledge and understanding of the mediation process and its implementation	**	***	**	
4. Learning about the socio-environmental system	*			
5. Raising of awareness of nature conservation and promoting pro-environmental behavior		***	**	
6. Lack of nature conservation activities			**	
Sociocultural				
1. Mutual learning about the culture, heritage and way of living of the others	**	**		
2. The final meeting as a mutual positive summary experience	**			
3. Opportunity to promote co-existence and a multicultural experience	**	**		
4. Collaborative hands-on and collaborative activities			***	***
5. Limited knowledge of and collaboration with the other group			***	***
6. Language and cultural difficulties during meetings and activities			***	***
7. Differences between Jewish and Arab students regarding expectations, collaboration and satisfaction			***	
8. Jew–Arab prejudice as a barrier of mutual knowing			*	
9. Differences in outdoor experience between schools influenced students motivation			*	
Organization, planning and teaching				
1. Unclear program planning caused differences between objectives expectations and accomplishment			***	

JS Jewish school, *AS* Arab school

* 1–2 students, ** 3–4 students, *** 5–8 students

Students' views of the conflict

The focus group interviews were used to answer the third research question as well. The reason for interviewing separate groups was our intention to let each group comfortably use either Arabic or Hebrew and freely express opinions.

The analysis of the data yielded three main themes with regard to the students' views of the environmental conflict that focused on: (a) *state versus people*; (b) *private property versus. public rights*; and (c) *nature preservation versus. developed tourism*. Only in the state vs. people did we identify a clear ethnic divide, while in the others, we found a whole range of perceptions amongst the two groups.

State versus people

The Arab students clearly referred to the *state* authorities in general as "they", "it"—a kind of strange external entity that is responsible to provide resources and solutions. The

Table 3 Students' recommendations for participating in a future project

Answer	Jewish group (N = 26)	Arab Group (N = 31)
Positive (recommendation)	16% "it was nice and an important experience. It's important to know our neighbor Bedouins"	84% "it (the project) has a great value, and we learned to care for our environment"; "yes, it improves Jew–Arab relationships"
Reserved positive (conditioned recommendation)	44% "only if there will be actual work in the creek, they should check first if they have the permits"; yes, but the communication between the schools should improve"	
Negative (not recommend)	40% "no, because we did not work at all"	3% "I already knew everything they talked about"
No answer		13%

following quotes of Arab students demonstrate the way they addressed the responsibility of the government and other authorities.

Ali[2]: The government did not accept the residents. It does not want them there (in the creek).

Abir: The residents want to stay in Zalmon Creek, but the state does not want them there. This is the conflict.

Nawal: …the state authorities should provide them (the residents) with water

Nawal: They (the state/authorities) should give them (the residents) another place to live, another water source, electricity, lands, maybe where they (the residents) want.

This approach was unique to the Arab students. The Jewish students expressed their personal attitudes referring more to *people as individuals.* They did not address the state or authorities as the source of power, and expressed two opinions: one, expressed by Dana perceived the residents as opposing the efforts of the state, and the other, expressed by Daniel and Yael that recognized the inevitable conflict between people's needs, historical circumstances and current environmental efforts.

Daniel: We saw the flour mill; it is ruined because they (the residents) do not take care of it, but they do not have enough money for construction.

Yael: They [the Nature Parks Authority (INPA)] want to develop the creek for tourism, but they (the residents) live there.

Ron: Personally I don't mind. They can live there.

Dana: The better they (INPA) develop the more the residents take over.

David: If each year another family settles, it sure interferes with the creek (natural system)

Daniel: Just below our village there's a creek, so what? Will they (the state/INPA) close Michmanim, Camane, and Cammoon (Jewish and Arab villages) only because once a year there is some water there?

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[2] All the names provided are pseudonyms.

These statements express ideas of socio-environmental justice: tension between human rights and environmentalism and between preservation objectives and the local people's poverty. Discussing such issues can be the center of multicultural environmental projects if the involved parties allow this discourse to develop.

Private property versus public rights

In this theme of social justice we identified cross group opinions: students who emphasized the principle of private property, while others who argued for the value of public rights. Support of private property was addressed with regard to land, water and archeological artifacts.

> Nawal (Arab student): Everything in their property is theirs, including water.
> Randa (Arab student): If the land and the water is in their possession, then it's theirs!
> Shir (Jewish student): …they (the residents) live there a long time…it (the mill) is theirs for generations.
> Daniel (Jewish student): People have always lived near rivers, before we (the Jews) came they lived in the creek.

The students who addressed public rights emphasized that natural resources cannot be private.

> Sarah (Jewish student): I think that only nature should be there. I think that people (the residents) should get punished for the way the creeks is. But since people live there, they would not do it (move them away). The best thing would be to allow them live on the edge of the park.
> Daniel: (Jewish student): Yes, but if the residents were more open, then they could have moved to the nearest Bedouin village. They are isolated there (in the park), they could get money and municipal services.
> Abir (Arab student): If they (the residents) keep taking water, all the plants and animals are harmed. The fish population decreases, the food chain is affected. The place is harmed.
> Marwan (Arab student): The people, the land owners, change the route of the stream, they construct; they transform and harm the creek.

Although we did not aim at comparing the frequency of each position within the groups, it was clear that two voices were expressed within each group. Both Arab and Jews supported the value of private property and historical ownership rights, and other students from both groups argued for the public's right on natural resources.

Nature preservation versus developed tourism

Here as well two voices came across the two ethnic groups: the voice of nature conservation and the voice of sustainable development that expressed the attempt to develop the creek for a wide range of tourism, but with care and caution to prevent unnecessary damage. The following excerpts express nature preservation supporters.

> Abir (Arab student): No, they should avoid any change in the creek, this is wrong (the planned development).
> Nethanel (Jewish student): It's not such a special place (does not warrant development) that people would want to pay money to get in.

Sarah (Jewish student): The families (residents) want to keep it as it is, but develop all sort of facilities, tourist like…I think it will ruin the place, it will damage its uniqueness.

Although more Arab students supported development projects than did the Jewish students, they emphasized that any development should respect environmental aspects. The Jewish students emphasized the minor commercial value of the creek while considering development and the Arab students indicated mainly the livelihood potential for the locals.

Randa (Arab student): (if it is developed) Many people will come, it will be nicer.
Eldar (Jewish student): I do not think it would be more interesting if it was a closed-protected nature reserve.
Nawal (Arab student): Only if we develop, but not harm, then it's okay.
Daniel (Jewish student): The residents would be able to work there: gift shop, restaurant, cleaning, guarding, but (not sure) will tourists always come?

Overall, the most interesting point was that neither the Jewish nor the Arab students addressed the creek residents as "the Arabs." It is especially noteworthy with regards to the Jews. In the complex Israeli political situation, it would only be natural if the students would refer to the residents' Arab–Bedouin ethnicity while judging the conflict, its origin and consequences. At the same time, the Arab students did not express any preconceived view in favor of the residents only because they were Arabs, who were discriminated because of their ethnicity. A possible positive outcome of the project, which was not addressed by the participants, could be the fact that the students from both communities expressed environmental, economical and ethical considerations, but none was directly related to the residents' nationality.

Final reflections with respect to environmental citizenry and multiculturalism

All the participants incorporated environmental and social aspects in their reflections. This reinforces the ideas of EfS according to which the project was framed. Similarly, all the parties addressed the socio-environmental conflict and its resolution in their expectations, as well as in their feedback regarding the accomplishments of the project. The conflict's central place in the project is aligned with ideas of place-based education and citizens' science, that highlight the central place of the (future) citizens in their community and society decision making processes (Aikenhead 2005). The adult participants praised the multicultural features of the project, and positively addressed the attempts to adapt the content to both cultures and to employ bilingual teaching, while referring to challenges arising from insufficient background of the teachers and guides in multicultural and bilingual teaching. The students reported social and language gaps while trying to collaborate and interact.

All the subjects highlighted the importance of knowing each other and expected to carry out mutual work. This is supported by the Contact Model (contact hypothesis), suggested in the middle of the twentieth century (Allport 1954 in Maoz 2000, p. 722), which showed continuous change of attitudes and relationships among diverse learning groups (Arab and Jewish youth in this case). The model states that under certain conditions inter-group contact can be effective in reducing prejudice: The groups should be of equal status, at least within the contact situation; successful contact should involve personal and sustained interactions between individuals of the groups; effective contact requires cooperative interdependence, where members of the two groups engage in cooperative activities; and

social norms favoring equality must be the consensus among the relevant authorities (Ben-Ari 2004). In this study, except for the first condition that was partially fulfilled (the Jewish group was of higher SES), all the other conditions were accomplished.

Some participants, mainly the Jewish students and most of the adults, pointed out the differences between groups regarding expectations, collaboration, and the overall satisfaction which were higher in the Arab group. The students addressed the differences in previous experiences in outdoors learning and different voices regarding conservation versus development were found as well. It was apparent that in the Israeli context, the Arab students highlighted the conflict between the state authorities and the residents, while the Jewish students did not perceive the authorities as an alien force and tended to refer to people or individuals. This emphasizes that despite the small achievements of the project, the Arab population feels marginalized.

It is possible that the differences result from the diverse positions and needs of each community and the unique difficulties the Arab minority faces in Israel. Another point that should be clarified here is that the Jewish communities of that school are known as liberal-progressive, which could explain the students being politically correct and referring to individuals instead of the local Arab community. We assume that in other regions and communities the views of the Jewish students would be different. Additional explanation could be that the two communities represent different environmental awareness and attitudes. This assumption is supported by findings of other scholars who addressed similar ethnical differences (Johnson et al. 2004). More specifically, it was shown that cultural and ethnical groups differ in their individualism-collectivism balance (Triandis 2001). In our case, the Bedouin community, which is more conservative, was more collective than the more individualistic Jewish Western open society. Furthermore, the greater variety of opinions toward the conflict in the Jewish group compared with the Bedouin group points out the collective-individual divide. This assertion is supported as well by Sagy et al. (2001) who studied encounters of high school Jewish and Palestinian students and found a higher national identity of the Palestinians who referred to "my nationality" and "my country" more than their Jewish counterparts.

As indicated, the adults addressed the complex nature of the project referring to EfS and place-based education ideas: choosing a real problem, which is relevant to the inhabitants of the region; suitability for the community needs; engaging the youth of the region; aiming at increasing involvement; and encompassing all the related social and political aspects and not just the environmental. They referred to objectives that incorporate knowledge, social encounters, changing attitudes and even behavior. In fact, the Jewish students thought the project contributed more to their knowledge than to any change in attitudes and behavior, while the Arab students indicated their general empowerment and shift in environmental attitudes and behavior. The adults agreed that the Arab students were highly influenced and went through a significant change that hardly occurred in the Jewish group.

Hungerford and Volk (1990) identified three major stages in adopting environmental citizenry of students, whereas the latter, more advanced stages refer to deep understanding of an ecological issue and individual empowerment which is related to beliefs and is expressed by the willingness to act. INPA coordinator and mentors and LINK representative aimed at reaching Hungerford and Volk's highest level; however, we were not sure all the students have reached this deep understanding and commitment. Furthermore, we challenge the suitability of Hungerford and Volk's scheme in the case of this and similar projects for we believe the important sociocultural goals are not addressed by that scheme.

The broad perception of the adults who saw the project as part of a greater endeavor that involve both communities, and the choice of INPA and LINK people of a complex and controversial issue is congruent with the eco-centric and guardianship view (Ballantyne and Packer 1996). According to this view humans should respect their environment and live in harmony. Moreover, it is in line with ideas of EfS that emphasize equal rights of humans of varied societies to live in harmony with each other and within their environment. The students of both schools expressed a mix of altruistic and biospheric values. Biospheric values exist when people judge environmental issues on the basis of costs and benefits to ecosystems, and altruistic values drive people to judge environmental issues on the basis of costs and benefits for a group of humans (community, ethnic group, or all humanity) (Stern and Dietz 1994).

The lesser involvement and feedback of the teachers of both groups and their reliance on INPA mentors repeats patterns we observed in many out-of-school learning events in museums as well as in the outdoors in Israel (e.g., Tal and Morag 2009). In our previous studies we claimed that the existence of professional guides and insufficient training in out-of-school teaching prevent the teachers from taking a leading role in the educational experience. Although much of the activity in this project did not require specific knowledge, and the teachers could have a more central role in making the social meetings work; they preferred taking only a minor part, a fact that is quite clear when examining their limited feedback. This is very interesting for it was reasonable to expect that in such a multicultural project, the teachers' role would be more significant.

Finally, the project provided a relevant and applicable framework for EfS in other regions and multicultural societies in Israel and worldwide, and by that we address Stevenson (2006) and others who claimed that there are not enough models for employment of EfS in the educational system. The project allowed the expression of a variety of voices of both adults and students from the two communities. Yet, we highlighted a few differences between the two ethnic groups with regard to their perceptions of the environment and human-environment relationships.

The participants reported partial achievement of the projects' (or their personal) goals, with better attainment of the environmental objectives than the sociocultural. Although the designers of the project should consider better alignment of targets and pedagogy as well as the proportions of school-based and nature-based activities, our findings indicate the great potential of multicultural environmental projects. Such projects are promising and address the ideas of EfS and citizens' science for they deal with a real controversy and engage the students in deep learning about all the conflicts and in doing actual work in the benefit of their environment and their communities. We believe that the project we studied requires a cyclic design process of implementation-reflection-revision, and that each iteration would be unique for it depends so much on the personal and collective views of the participants.

Regardless of the proposed improvements in the project structure and pedagogy, we believe that the framework of multicultural environmental projects is a good working example for how to employ the sociocultural theory in practice. Unlike classroom based learning, the physical settings and the interactions among the participants create optimal conditions to the development of meaningful socio-environmental discourse. Environmental problems worldwide are caused by competing interests of human beings, and are characterized by difficulties to communicate ideas, to argue and listen to the other party, and by conflicts between stakeholders, authorities, organizations and the broad public. Our positive experience in an extremely sensitive socio-political context could inspire others who face socio-environmental conflicts to adopt a similar approach. Although we cannot conclude with statements about continuous and sustainable relationships amongst Arab and

Jewish students, the fact that the project continues in the following years, and that other multicultural environmental projects are designed and implemented in other areas of the Galilee imply that many authorities, schools and communities acknowledge their importance. Better employment of sociocultural principles in the learning process, such as increasing the involvement of the teachers, and reducing the hegemony of the environmental organization staff could better serve the students, and could allow better involvement of and interaction between teachers from both schools.

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