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Empowering Teachers . An intervention program for raising the awareness, changing perceptions and implementing environmental contents in the educational system

Abstract: The main purpose of this article is to present to the audience of teachers in primary schools an intervention program in the field of environment . The program is designed

to give teachers theoretical and applied knowledge that they need to become leaders in the field of environment. The program aims to provide a broad and relevant background to the community of teachers so that they can integrate it in the contents that they teach and in order to add the environmental aspect to the issues that the curriculum deals with. In addition to knowledge, the program allows teachers to experience through activities designed to prepare the basis for the environmental action and through dealing with actual environmental action. The program is also intended to change the perceptions of teachers regarding their role and to give them the feeling that they can influence the knowledge, attitudes and behavior of students regarding the subject of the environment. The ultimate goal of the program is to integrate environmental issues into the daily action of the school, that is, not another project, but a way of life that comprehensively accompany the school action in all its areas of action.

Rezumat: Scopul principal al acestui articol este de a prezenta un program de intervenție în domeniul protecției mediului. Programul oferă cadrelor didactice repere teoretice și cunoștințe de care au nevoie pentru a eficientiza realizarea educației pentru mediu, pentru a putea integra în conținutul pe care îl predau noi aspecte ce țin de mediu. În plus, programul permite profesorilor să experimenteze prin activități menite să pregătească baza pentru interacțiuni civilizate cu mediul. Acesta este preconizat, de asemenea, pentru a schimba percepțiile profesorilor legate de rolul lor și pentru a le da sentimentul că pot influența cunoștințele, atitudinile și comportamentul elevilor în ceea ce privește subiectul mediului. Scopul final al programului este de a integra aspectele de mediu în acțiunile de zi cu zi ale școlii, care este nu un alt proiect, ci un mod de viață ce însoțește cuprinzător acțiunea școlară în toate domeniile.

Keywords: Environmental education, environmental literacy, environmental perceptions, environmental programs, environmental action, Teaching staff.

INTRODUCTION

The environmental education, through action and actual experience, is the most important tool for behavioral change among the wide population. Teachers audience that are in immediate proximity to the next generation citizens of the country, has a tremendous potential to bring about this change. Each teacher perceives the con-

cept “environment”, the implementation and the role of the environmental education in a different way, that is because he came up with a complex system of knowledge, beliefs, values and perceptions, which he formed during his previous experiences, and it affects the learning process he is experiencing. Perceptions of teachers are very important because they are the key to the implementation of a significant environmental education in the school system and to the development of environmental literacy among students [6]. In addition to knowledge, teachers must provide students with the ability to understand, to review and discuss, equivalently, environmental issues which are scientifically and ethically loaded, and require a comprehensive reference that includes considering ethical, moral, social and cultural considerations. If teachers are lack of knowledge, skills, attitude and commitment to the environment, it is unlikely that they can be used as leaders of environmental change in schools [10]. A Report to Congress on the Status of Environmental Education in the United States). Empirical evidence suggests, that inadequate environmental education in teacher education is one of the obstacles to successful implementation of environmental education in schools [1], [4], [6], [7], [15]. The ways in which people experience the environment and understand it, reflects on their environmental behavior and therefore it is important to decipher these understandings [5]. Teachers’ environmental perceptions affect students’ environmental perceptions and thus their behavior. Therefore decoding environmental perceptions of teachers and students will help to achieve the goals of environmental education because environmental education is an education for social and environmental change and it directs to behavioral change that leads to environmental responsible behavior. In order to achieve its goals, the environmental education must be contextual and based on the ways in which different people perceive their environment, understand it and define their place in it [16].

Identifying ideas and understandings, about the meaning of environment, including decoding students’ perceptions, adds an aspect that cannot be revealed in a quantitative investigation of the environmental literacy variables (knowledge, attitudes and behavior). Thus, there is a contribution to the building of more comprehensive and accurate picture about students’ environmental literacy, which will lead to a significant integration of environmental education in the curriculum. On the other hand, and because perceptions reflect and clarify the understanding, the analysis of the perceptions may contribute to the development of effective and significant programs and methods of teaching in environmental education, that extend

and deepen these understandings [5], [12], [13]. Most teachers in Arab schools, green and non-green are not exposed or exposed a little to the environmental issue [11]. According to Methany’s research [8], in her thesis at Seminar Hakibbutzim, who examined the characteristics of the teachers’ environmental attitudes from the Arab sector, the role of environmental education in their eyes and the links between their environmental attitudes and perception of their role, she came to the conclusion that Arab teachers have attitudes that indicate them as suitable to be used as agents of change in promoting proper ecological attitudes, but perception of their role as active designers of environmental attitudes and behaviors among students is inadequate, most of them see that their educational role as transferors of information of issues related to the common environmental perceptions. This program is unique for Arab schools because most of the teachers are not exposed to the materials that were transferred in this program, therefore this program is necessary in all the Arab schools that want to combine and to promote environmental education and raise the level of students’ environmental literacy in their schools.

Program Description: the intervention program is actually an annual training course, consisted of 14 sessions of two/three teaching hours (total 30 teaching hours). The program included lectures, workshops and tours about environmental issues, in which issues were raised, discussions were conducted, teaching models were taught, work groups were activated, teachers watched movies and presented lessons that were delivered or will be delivered according to the teachers’ expertise, materials from the teachers experiences were raised and discussions will be conducted (presentation and analyzing a case Study). The workshops were supposed to prepare and support teachers in their work practice at school regarding environmental Education.

Target population: all the teachers at the school.

Location: within the school, inside the teachers room.

Time: As part of the meeting hours that were designed for staff meetings throughout the academic year.

Program objectives: providing environmental knowledge about issues relevant to the teachers’ fields of work; getting the best of the different skills and the diverse capabilities of all teachers in the school; strengthening teachers’ environmental perceptions and perceptions about their role as active designers of environmental attitudes and behaviors among students; encouraging teachers and raising their level of willingness to work with their students for the environment; sharing all the teachers at school in the environmental program and integration of environmental education

in all fields of study; expanding the responsibility and deepening the involvement of staff: not to throw the responsibility solely on stakeholders teachers who work sometimes alone without support in actions and also not on the teachers whose teaching fields are significantly more related to environment (teachers of science, environmental science, geography and homeland) so that the environmental issue would not receive only a scientific orientation without a wide social-cultural context; providing a significant interactive teaching model related to environmental education; contacting the ongoing learning and the curriculum of the school; and raising the level of environmental literacy of students in the school. The emphasis in this program is on experiential and practical learning, and on action for the environment.

CONTENT OF SESSIONS

First Meeting topic: matching expectations, creating a contract and familiarity with basic concepts in environmental issues. Type of meeting: Workshop. Teaching methods: independent work, group work, presenting information using a projector, and a plenary discussion and teaching with a presentation. The purpose of matching expectations is to identify and express publicly the realistic expectations about the program, to coordinate and discuss the expectations of the participants and to provide a basis for decision-making and joint planning of activities. And the purpose of the contract is to define the rules of the expected behaviors of the group. In the second part of the meeting: The moderator has defined the concept “environment” and referred to the concept of “environmental justice”. Examples from daily life were used. At the end of the meeting, the moderator turned her teachers, who are interested in enrichment on the subject, to read the article Environmental Justice in Israel [2].

Second meeting topic: the environment as a source of knowledge and as a source for personal development and the impact of the natural environment on the person. Type of meeting: Lecture and workshop. Teaching methods: frontal teaching with presentation, group work, plenary discussion, presentation a drawing or model or another. In the first part of the meeting a lecture was transferred about the topics: learning environment, the role and importance of the learning environment, the learning environment as a source of knowledge and as a developer of the personality, and the school yard as a learning environment, the nature and the natural environment as a learning environment and the importance of fostering the connection to the natural world and the environment.

In the second part of the meeting a workshop was held, it aimed to indicate the ecological services that a

person receives from the natural environment and to describe the perfect environment in which we want to live. The moderator made it clear from the beginning that the workshop can serve as a teaching model and each teacher can try it with his students (better during the education hours).

Third meeting topic: the environmental crisis (human impact on the environment). Type of meeting: film and lecture. Method of instruction: Watching parts of a film and frontal teaching with presentation. In the first part of the meeting the teachers watched parts of the film called “Home” [17]. After watching the film the moderator asked some questions and a discussion took place between teachers. In the second part of the meeting a lecture was transferred. The issues raised in the lecture were: the environmental crisis and its causes, the ways we must take to deal with this crisis, the importance of the younger generation in this tackling.

Fourth meeting topic: active learning, learning outside the school and learning trip. Type of meeting: lecture, workshop and peer learning. Teaching methods: frontal teaching with presentation, group work, presentation of a lesson plan. During this meeting the teachers received skills and tools to relate intelligently to environment as a resource that helped them to plan a lesson array in order to give it in an outdoor environment. In the first part of the meeting a lecture was transferred. The issues raised in the lecture were: definition of the concept “active learning” and active learning objectives, definition of the concept “the outdoor environment” and the unique targets of outdoor teaching, the learning trip as a model for teaching and the importance of the preparatory classes before performing the outdoor activities. In the second part of the meeting a workshop was conducted. The participants were divided into groups according to their teaching profession and each group mapped the curriculum. Then each group defined a theme and objectives for an outdoor lesson which in their opinion it is possible to develop and integrate in their work during the remainder of the school year. At the end, the moderator introduced the lessons plans prepared by teachers to all the teachers and asked them to present the them to the students.

Fifth meeting topic: Environmental education in our country and abroad, and environmental literacy (historical background). Type of meeting: Lecture. Teaching methods: frontal teaching with the use of a presentation. During the meeting the moderator gave a lecture with the use of a presentation around these issues: environmental education as a response to the global environmental crisis, environmental education in our country, defining key concepts in environmental

education and focusing on the concept of “environmental literacy”: knowledge, attitudes, behavior and decision-making in the environmental-education context. At the end of the meeting, the moderator asked a question to think about for the next meeting: how do you personally perceive the concept “environment”?

Sixth meeting topic: approaches in environmental education. Type of meeting: Workshop and lecture. Method of teaching: individual work, frontal teaching with the use of a presentation. In the first part of the meeting each teacher was asked to write on a paper how he perceives the concept of “environment” as an answer to the question given last meeting. Further, the moderator asked each teacher to read what he wrote and meanwhile the answers were summarized and recorded on the board. In summary, the moderator explained the importance of clarifying the environmental perceptions of the teachers in order to develop effective and significant programs and methods of teaching in environmental education. In the second part of the meeting the moderator gave a lecture with the use of a presentation that focuses on the different approaches to environmental education.

Seventh meeting topic: the waste problem and the water problem. Type of meeting: Lecture. Teaching methods: frontal teaching with the use of a presentation (presenting images from around the world, from our country and the from nearest region in order to illustrate the problem). The issues raised at the meeting: the garbage problem around the world and in our country; sources of garbage, saving processes, reusing, incineration, recycling, waste handling; the water problem in the world and in the country; and sources of the problem.

Eighth meeting topic: the problem of waste incineration in the Arab sector. Type of meeting: Lecture. Teaching method: watching a movie, plenary discussion, frontal teaching with the use of a presentation. At the beginning of the workshop, teachers were asked to watch a short film entitled “Prevention of waste incineration in the Arab sector.” After watching the film the moderator asked some questions and a discussion was held about the presented problem. Further, the moderator presented a presentation around the topics: the source of waste incineration problem in the Arab sector, struggling against the phenomenon, cooperation as a solution to the problem. A discussion took place between teachers and the important points were summarized on the board. At the end of the meeting the moderator directed the teachers, in preparation for the next meeting, to review the brochure: “Education for sustainability” [14].

Ninth meeting topic: activating the environmental education in the school curriculum and the environmen-

tal education projects operated by outside agencies. Type of meeting: Lecture. Teaching methods: frontal teaching with the use of a presentation and plenary discussion. The main points that were raised at the meeting: necessary conditions for activating environmental education at school and models for activating environmental education at school. The moderator referred to each model briefly, and concentrated on the model “learning teachers’ room” and on its advantages and disadvantages. Other points raised: types and scopes of environmental education programs; the environmental document of the NAAEE [9] that can be used as an aid for planning curriculum in environmental education and a review of ongoing programs and projects focusing on “the qualification process for green school” and referring briefly to the other programs.

Tenth meeting topic: evaluation in environmental education. Type of meeting: Lecture. Teaching methods: frontal teaching with the use of a presentation and individual work. The main points raised at the meeting: assessment for learning as a tool for improvement and not for reporting; evaluation of programs and projects; assessment of learners or outputs of the program; assessment through a case study; evaluation tools that were used recently in the country in primary schools; and transferring the questionnaire of the researchers Goldman, Yavets and Pe’er, that was developed in order to determine the level of environmental literacy of students at the end of their third year in the colleges of education [3], in order to assess the teachers’ level of environmental literacy and to experience the evaluation tools.

Eleventh meeting topic: a tour/visit in a green school, leading in environmental education, in the North. Type of meeting: tour. Method of teaching: tour, presentations, watching a video and discussion. The purpose of the visit: to learn about how theoretical studies, which are related to environmental issues, are held in school; which topics and concepts are included in the program of the school; which teaching methods about environment they use; to recognize the action plan in which the school is implementing a sustainable lifestyle; to learn about the methods that the school uses for a green visibility; and to learn about the environmental projects at school and about the form in which the green leadership act at school.

Twelfth and thirteenth meeting topic: Presenting Lessons/integrating the environmental theme in different teaching professions. Type of meeting: peer learning. Teaching method: using presentation and discussion. Towards these meetings, teachers were asked to work in groups according to their specialization, to plan and teach a lesson (in or outside the classroom) in a topic related to the environment for a certain layer (of their

choice) in view of the material taught in the lectures, in the workshops and in the discussions that took place in meetings with focusing on environmental knowledge, attitudes and behavior that we strive to promote and raise among students. During these two meetings each group chose a representative who presented the lesson to the others. Teachers shared each other with the successes and/or difficulties that they experienced and they talked about their experience and the contribution of the meetings to their private development. At the end of the meeting each teacher was asked to summarize, in one phrase, what he learned from this program, how the program has contributed to his professionalism and how he plans to continue to apply what he learned while working at the school, as a summary of the intervention program.

Fourteenth and final meeting topic: a concluding tour at the center for research and environmental education in Sakhnin. Type of meeting: tour. Teaching methods: frontal teaching, watching a movie and visiting the stations of the center. The purpose of the visit: to give teachers the opportunity to have a practical authentic experience in areas of knowledge such as sewage treatment and improvement of reclaimed water, energy conservation, alternative energy and green building. The intervention program was divided into two phases: introduction to the environment and deepening and application in specific issues.

Throughout the program, tools and methods for leading to a significant action, were incorporated in order to create desire and motivation among teachers for performing and implementing the program, and particularly for an active action for the environment. Topics and duration of meetings during the intervention program are presented in Table 1.

Table 1. *Topics and duration of meetings during the intervention program*

Meeting number	Meeting topic	Meeting duration
1	Matching expectations and building a contract + recognizing basic concepts in the environment subject	2 hours
2	The environment as a source of knowledge and as a source of personal development + the effect of the natural environment on humans	2 hours
3	The environmental crisis (the human impact on the environment)	2 hours
4	Active learning, learning outside of school, learning tour	3 hours
5	Environmental education in the country and in the world and environmental literacy (background)	2 hours
6	Approaches in environmental education	2 hours
7	waste problem and water problem	2 hours
8	The problem of waste incineration in the Arab sector	2 hours
9	Activating environmental education at school + learning programs and projects in environmental education operated by external bodies	3 hours
10	Evaluation in environmental education	2 hours
11	A tour in a green school, leading in environmental education, in the North of the country	2 hours
12-13	Integrating the environmental theme in different teaching professions: Presentation of lessons	4 hours
14	A concluding tour at the center for research and environmental education in Sakhnin	2 hours

SUMMARY

The best way to improve the level of students' environmental literacy, in all its dimensions, is through the teachers that are always in direct contact with students. If we invest in teachers then we achieve better results for students. The main objective of environmental programs designed for teachers, such as the proposed intervention program, is to share all the teachers in the school, to enrich them with knowledge and skills and improve environmental awareness, environmental behavior and environmental responsibility. As part of such programs teachers are given the tools to develop the environmental commitment of their students. Such a program will empower the teachers so that they can contribute to students, families and school in this topic. The final products of such programs are a leading group of teachers and improving environmental literacy among teachers and students.

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