

IMPLEMENTATION OF ENVIRONMENTAL EDUCATION CASE STUDY: ACTIVATING THE "GREEN SCHOOL" PROGRAM AMONG ELEMENTARY SCHOOL STUDENTS IN ISRAEL

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ABSTRACT:

Environmental education is a relatively young area. It relates to a global concern, which gave birth to two historical documents: the Belgrade Charter (*UNESCO, 1976*) and the Tbilisi Declaration (*UNESCO, 1977*). These documents raised the need for environmental education, which will serve as a tool of creating a change and developing population who is aware of the environmental crisis and has the obligation to act on a personal and collective basis to solve environmental problems and prevent the creation of future ones. In Israel, an educational initiative; the "Green School" program was initiated in order to promote sustainable development and active environmental citizenship. This article portrays a study that examined the contribution of implementing this initiative in relation to students' environmental literacy in terms of its three major components: knowledge, attitudes and behavior (*Simmons, 1995, 1998*). Research findings indicate that implementing the "Green School" program might promote pro-environmental behavior. Furthermore, these programs were found to affect both school's curriculum and activities and the community in which it operated. The practical implication of this research suggest more clarity regarding the importance of infusing 'green school' programs as an integral part of schools' lifestyle.

Keywords: *"Green School" program, environmental literacy, environmental education (EE), sustainable development (SD), place-based education.*

1. INTRODUCTION

Over the past few years, there is a spreading trend of certifying public institutions in general, and schools and kindergartens in particular as "Green Institutes". This trend is in line with the public and political, as well as media's interest in concepts such as "Sustainable Development" and "Sustainability". In 1987, the United Nation's Brundtland Conference declared that promoting Sustainable Development is necessary for coping with the intensifying environmental crisis. Sustainable development is believed to be a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Education for Sustainable Development (ESD), or Sustainability Education (according to a more humanistic approach), is a new approach of environmental education, whose meta-goal is to develop an environmental literacy. Various environmental projects which have taken shape, apply diverse work in the field of environmental education. This type of education is not uniform. It is varied and unique for each community, place, and time period.

A new environmental approach which focuses on places settled by human beings and emphasizes quality of life, constitutes a basis for a different pedagogy. The cultural and social dimension which characterizes different places is the source for "Place-Based Education" approach (Dunitz, 2004). According to this approach, unique characteristics of

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a certain place or area, in various fields such as history, culture, economy, literature, and art, constitute the core of pupils' and teachers' experimental learning. *Gruenewald (2003)* states that pupils tend to lose 'feeling of place' if the learning process focuses too intensively and, advancing at a speedy pace, on national and global issues. He argues that it is necessary for pupils to focus on their immediate surroundings before advancing to wider circles. This approach's purpose is to aid the community by recruiting pupils and teachers for involvement in resolving environmental problems, and thus, as stated by educational philosopher *John Dewey (1998)*, assisting the school in fulfilling important social functions.

"Green School" conception, which is also based upon the "Place-Based Education" principles, was derived from the Whole-School Approach, which strives to bridge the gap between exposure to values and their practical implementation. While an environmental awareness and values education may be inductive for a sustainable environmental activity, they do not necessarily lead to forming a 'sustainable lifestyle', namely, a lifestyle facilitating a balance between human needs and environment protection. The Whole-School Approach, according to which the entire school, along with its associates, may play a role in causing such an essential behavioral change (*Shallcross & Robinson, 2008*).

The Green School certification trend has been spreading world-wide. In 2001, more than two thousand elementary schools in 11 European countries were involved in the Eco-Schools programs. Those schools seek to provide the pupils with knowledge, attitudes, and skills which will train them for critical and environmental thinking, independent learning, and conscientious environmental behavior. A study which was conducted in Australia (*Chapman & Sharma, 2001*) concerning Eco-Schools in Asia (in India and in the Philippines) found that the conception of those schools might aid in affecting pupils' attitudes, thereby turning them into more environmentally conscientious citizens. The research suggests that school development may constitute a model for a sensible environmental conduct, such that pupils may continuously experience sustainability on a daily basis. It shall be noted that Green Schools are a world-wide trend. In China, for instance, 135 schools received a green certification in 2000, and are considered as leading in implementation of environmental education in their communities (*Wu, 2002*).

In May 2003, the Israeli government decided upon a strategic program, whose purpose was to promote Education for Sustainable Development. One of the main initiatives proposed was the certification program of "Green Schools". The program was derived from the principle guiding Education for Sustainable Development, which supports adapting a long-term educational process - rather than short term projects - where pupils, teachers, and management will implement a school culture based upon environmental principles adapted by the school community. The school is required to form an action program which will encompass four aspects:

1. Theoretical study - Quality of the Environment matters will be included in the elementary school curriculum.
2. A sustainable use of resources - The school is required to reduce the use of at least one resource (water, electricity, paper) and/or collect for recycling waste of at least three materials (paper, batteries, organic waste).
3. Community involvement - The school is required to engage in a project involving an ongoing activity for the sake of the community, in order to increase awareness for quality of environment-related matters, and to cause a behavioral change (for example: Increasing recycling, ongoing care of neglected areas, recruiting area residents and the local council).

4. Green council - Establishment of a council consisting of pupils, teachers and parents' representatives that will promote school's certification process, thus all parties involved in the educational activities participate in the decision-making processes.

Finally, the school will undergo a testing and feedback process, and receive certification as a Green School. The certification process is financially supported. A school may annually renew its certification, if there is an interest in doing so. Until now, about two hundred and fifty schools have been certified, most of which are elementary schools, constituting about eight per cents of all schools in Israel. Most certified schools (about sixty per cent) are part of the rural communities, mainly located in the northern part of Israel.

2. THE RESEARCH AIMS AND METHODOLOGY

This research presented the effectiveness of the "Green School" program as perceived by the students. It used both qualitative and quantitative tools. To that extent, it is a pioneer study which provides a profound picture of educational initiative. The research aims were:

- a. To examine the students' conceptions regarding environmental issues.
- b. To compare students' pro-environmental behavior, environmental attitudes and level of environmental knowledge in three different types of schools (control, green, diligent green).
- c. To characterize the different factors within the "Green School" program that affect students' environmental literacy.
- d. To evaluate the effectiveness of the "Green School" program in urban elementary schools in terms of the impact on environmental literacy.

This study adopted a mixed methods approach and was conducted as a case study, which entails the detailed analysis of several cases (*Bryman, 2008*). By combining both qualitative and quantitative procedures, this study practices the concurrent triangulation strategy in which two different methods cross-validate or corroborate findings within a single study. The three school types chosen for the research, having similar background characteristics, were located in a city in the urban center of Israel.

The current research was conducted in two stages:

Stage 1 : Quantitative

Research method included a close-ended questionnaire. It used a questionnaire that has been served as a national survey for the sixth and twelfth grade students in Israel (*Negev et al., 2008*). The questionnaire included 81 questions and was distributed to 146 sixth graders from six classes (two from each type of school: control, green and diligent green schools). The data collected were statistically analyzed using SPSS v.17 and STATISTICA 8.0.

Stage 2: Qualitative

Research methods included semi-structured interviews. 24 students (8 students from each school) were interviewed at the second semester of the school year. The interviews followed an interview guide, which included 13 questions. The questions were designed to elicit more information about the student's perception regarding environmental issues. The data collected were coded by themes, following the grounded theory framework (*Charmaz,*

2000) and then content analyzed. Three themes: knowledge, attitudes and behavior were divided into categories which represented best the students' answers in the interviews and portrayed their perceptions in relation to environmental issues.

3. RESEARCH MAIN FINDINGS

The knowledge dimension

Relating to the 'knowledge' component, the current study distinguishes between the different types of knowledge:

- a. system knowledge - the understanding of ecological systems and environmental issues (*Frick et al., 2004*).
- b. action related knowledge - the understanding how to operate in order to deal with environmental problems.

Analyzing the research data, no significant differences were found among three school types regarding system knowledge. However, green and diligent green school students presented a larger variety of creative ways to cope with global and local environmental problems. When asked to identify global environmental problems, control school students mentioned only a limited range of problems, mainly throwing litter and air pollution. Green and diligent green school students pointed at a larger range of environmental problems such as: water shortage, ozone hole, water, air and noise pollution, radiation, animals' extinction, shortage of natural resources.

The attitudes dimension

Overall, students' attitudes and awareness level towards the environment were positive. Students from all school types acknowledge man's responsibility towards the environment and identify with pro-environmental values. However, unlike control school students, green and diligent green school students pointed at school as the main source of information about the environment (**Fig. 1**) and chose the teacher as the main figure with whom they enjoy studying about nature (**Fig. 2**). These findings mark school as a meaningful place for green and diligent green school students where the teacher is perceived as a significant mediating figure in the environmental learning process.

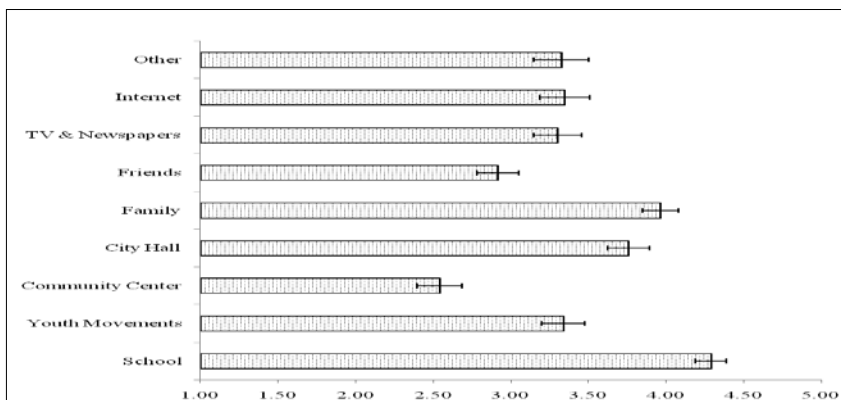


Fig. 1 The total mean score for each information source contributing to environmental knowledge.

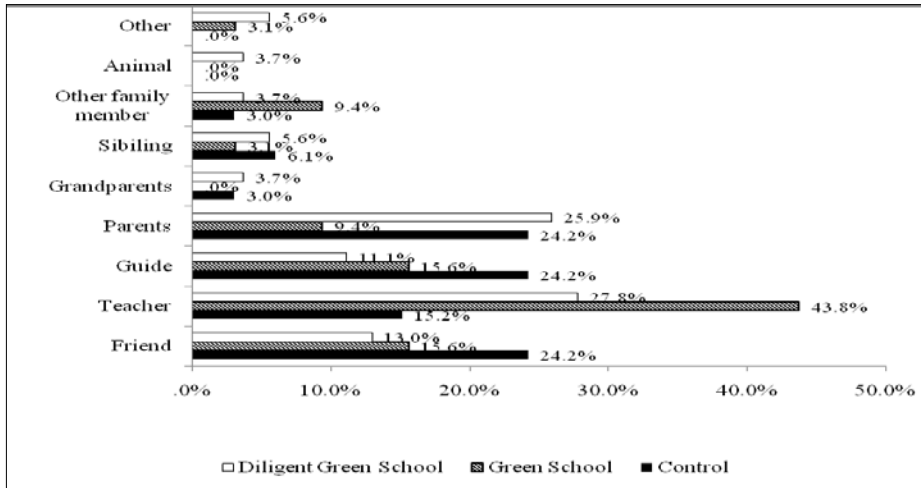


Fig. 2 Percentage of students choosing mediating figures with whom they enjoy studying about nature.

The behavior dimension

Analysis of the students' responses during the interviews yielded the following inferences:

- Green school students tend to become more involved in pro-environmental projects and to take an active part in the decision making concerning environmental issues and their implementation in school.
- Green school curriculum is of a multidisciplinary nature. Outdoor activities are part of the environmental learning and they are taking place within or outside school premises (**Fig. 3**).
- The school community becomes involved and serves as school partners in relation to environmental issues. Parents are actively involved in environmental projects (**Fig. 4**) and participate as full members in green councils. Neighbors are encouraged to act for the community and cooperate with school's projects (e.g. writing a letter to the mayor). Students reveal active citizenship and contribute to the community by volunteering in kindergarten and homes for the elderly.



Fig. 3 Whole school learning activities in the community



Fig. 4 Outdoor learning activities in school's ecological garden.

4. CONCLUSIONS AND RECOMMENDATIONS

This study aim was to achieve a better understanding regarding the way students explain and conceive environmental issues and to closely look into the "green School" program and to define the unique characteristics and contribution to the students' knowledge, attitudes and behavior (i.e. environmental literacy).

Implementing Green School programs allowed the students to practice critical thinking. The pointing out of green and diligent green school students to local environmental problems brings a new kind of learning – 'critical pedagogy of place' which identifies "places" as the context in which situations are perceived and acted on. For 'critical pedagogy of place', the "texts" students and teachers should "decode" are the images of their own concrete, situated experiences with their world (*McLaren & Giroux, 1990*). In addition, Green School multidisciplinary approach to the environment presents a new curriculum where environmental issues are interconnected. Green school's activities provide more opportunities for their students to experience nature both in and out of school. Being in touch with nature is strongly connected with the process of creating an environmental identity and encouragement of pro-environmental activism. The study results lead to the conclusion that implementing "Green school" programs is effective in promoting pro-environmental behavior.

Both green and diligent green school students were found to be more involved in decision making regarding environmental issues and their implementation in school. The students manifested responsible citizenship behavior in their wish to contribute to school's community. To that extent, school has succeeded to form a 'place attachment', which emphasizes the manner in which we personally construct our notions of place (*Gifford, 2002*).

Finally, this research accentuates the significant role of school in creating a social change. Green school students ranked school and teachers as dominant contributors to environmental information and knowledge. Thus, the implications for practice are that educators should integrate green programs as an integral part of school's curriculum. For achieving this purpose there is a need to train teachers to use different teaching strategies and develop new learning materials. In addition, suitable budgets should be devoted to environmental educational programs, allowing schools to finance greener learning surrounding and outdoor activities.

As a green school principal and as an educator, I believe in the capacity of an educational process to serve as means for social change where school and teachers serve as societal agents, and I hope that this study will assist in developing further educational tools in order to better cope with the environmental crisis and to educate a new generation to choose another path.

REFERENCES

- Bryman A., (2008), *Social Research Methods*. 3rd ed. UK: Oxford University Press.
- Chapman D., Sharma, K., (2001), *Environmental attitudes and behavior of primary and secondary students in Asian cities: an overview strategy for implementing an eco- schools programme*. The Environmentalist, 21(4), pp. 265-272.
- Charmaz K., (2000), *Grounded theory: objectivist and constructivist methods*. In: N.K. Denzin & Y.S. Lincoln eds. *Handbook of Qualitative Research*. Second Edition. Thousand Oaks, CA:Sage.

- Dewey J., (1998), *The moral training given by the school community*. In: L.A. Hickman & T.M. Alexander eds. *The Essential Dewey*, Volume1. Bloomington: Indiana University Press, pp. 246-249.
- Dunitz D., (2004), "*Pedagogy of Place*" in the "*Green Network*". In: Eureka, Vol.18; Tel Aviv University, the Ministry of Education and the Amos De Shalit Science Teaching Center.
- Frick J., Kaiser, F.G., Wilson M., (2004), *Environmental knowledge and conservation behavior: exploring prevalence and structure in a representative sample*. *Personality and Individual Differences*, 37(8), 1597-1613.
- Gifford R., (2002), *Environmental Psychology: Principals and Practice* (3rd Ed.). Canada:Optimal books.
- Gruenewald D.A., (2003), *The best of both worlds: A critical pedagogy of place*. *Educational Researcher*, 32(4), 3-12.
- McLaren P., Giroux H., (1990), *Critical pedagogy and rural education: A challenge from Poland*. *Peabody Journal of Education*, 67(4), 154-165.
- Negev M., Sagy G., Garb Y., Salzberg A., Tal A., (2008), *Evaluating the environmental literacy of Israeli elementary and high school students*. *The Journal of Environmental Education*, 39 (2), 3-20.
- Shallcross T., Robinson J., (2008), *Sustainability education, whole school approaches, and communities of action*. In: A. Reid & al. (Eds.), *Participation and Learning*. Springer.
- Simmons D., (1995), *Developing a framework for national environmental education standards [Working paper]*. In D. Simmons (Ed.), *The NAAEE Standards Project: Papers on the Development of Environmental Education Standards* (pp. 9–58).Troy, OH: North American Association for Environmental Education.
- Simmons D., (1998), *Education reform, setting standards, and environmental education*. In H. Hungerford, W. Bluhm, T.Volk, & J. Ramsey (Eds.), *Essential Readings in Environmental Education*,(pp. 65-72). Champaign, IL: Stipes.
- UNESCO, (1976), *The Belgrade Charter: A global framework for environmental education*. Connect, I (1). Paris: UNESCO-UNEP.
- UNESCO, (1977), *Intergovernmental Conference on Environmental Education: Final Report*. Tbilisi, USSR 14-26 October 1977. Paris: UNESCO-UNEP.
- WCED, (1987), *The World Commission on Environmental and Development: Our Common Future*. Oxford: Oxford University.
- Wu Z., (2002), *Green schools in China*. *The Journal of Environmental Education*, 34(1), pp. 21-25.