

Environmental Engineering Education Overcome the Language Barrier

HEN FRIMAN^{1*}, YAFA SITBON², IFAA BANNER³, YULIA EINAV^{1,4}

¹Faculty of Engineering. HIT - Holon Institute of Technology, Holon, ISRAEL

²Dean of Students Office. HIT - Holon Institute of Technology, Holon, ISRAEL

³Director of "Israeli Hope". HIT - Holon Institute of Technology, Holon, ISRAEL

⁴Dean of Students, HIT - Holon Institute of Technology, Holon, ISRAEL

*henf@hit.ac.il http://www.hit.ac.il/en/faculty_staff/Hen_Friman

Abstract: In Israel, there is a separation between the Jewish education system and the Arab Israeli education system. The decision for this separation has both practical and ideological explanations. There are those who claim that the demographic realities dictate this separation. However it is revealing that the policy since the founding of the state was to strengthen and preserve the Jewish identity amongst the Jewish sector, and a coming to terms with the national identity of the Arab Israeli pupils. The ideological component is the more important of the two; this is evidenced by the fact that even in places where it would be possible to establish a combined education system, like in mixed cities like Ramla. Holon Institute of Technology (HIT) has developed an integral system of environmental education and training. The course is named "Green Ambassadors", and the goal is to educate the next generation environmental education. The course is divided into 6 groups; each group contains 3 to 5 Israeli Hebrew speaker students, whose goal is to provide information on environmental to Arabic school with Arabic speaker pupils'. The teams of five -graders and six -graders from "Al Omariya" school in Ramla have been chosen to take part in the project. Concentrate efforts on the improvement of education for sustainable development marked the beginning of a serious reform to cover all types of education and training from preschool to vocational and post -university.

Key-Words: Arabic, Environmental Education, Elementary school, Hebrew.

1 Introduction

Environmental Education is the key for creating a clean energy future for not only the nation, but the world. World Energy Consumption relies heavily on coal, oil, and natural gas. Fossil fuels are non-renewable, that is, they rely on finite resources that will eventually dwindle, becoming too expensive or too environmentally damaging to retrieve. In contrast, renewable energy resources, such as wind and solar energy, are constantly replenished and will never run out. Due to the rising need for professionals and academics with a background and understanding in the Energy field, Holon Institute of Technology (HIT) developed an integral system of environmental education and training and a new program at the Faculty of Electrical Engineering. The Renewable Energy program gives the students technical and practical aspects of energy use (technology and methodology of the study) and energy efficiency. The program also deals with minimizing the environmental impacts of energy use, as well as with energy economy and environmental policy. This article presents a new challenge. Teach environmental issues with language difficulties. Israeli Hebrew speaker

students, teach environmental education in Arab school with Arabic speaker pupils'.

2 Arab public school in Israel

The Arab public school system, legally obliged to provide a level of education equal to that offered to Jewish citizens, is in fact inferior, on average, to the Jewish public school system due, in part, to the unequal budgets and resources allocated by Israel's government. This often creates gaps in knowledge in a range of subjects [1, 2, 3]. Arab students from Israel also find it more difficult than their Jewish peers to meet the demands of an academic system that requires critical discourse, as Arab schools tend to allow less room for expressing opinions and encourage more passive [4, 5]. Therefore, many Arab students are at a disadvantage especially relative to their Jewish counterparts. Many of them lack both the cultural capital [6, 7] and the type of academic skills required for coping with Western-influenced Israeli culture, making it difficult for them to match the achievements of their Jewish peers.

Henry Giroux asserts that "while the hidden curriculum cannot be entirely eliminated, its structural properties can be identified and modified"

thus enabling the teacher to develop new pedagogical methods [8]. These methods, which Giroux and others identify as critical pedagogy, may partially and temporarily transform the power relations in class and may develop critical and political consciousness among participants, students and teacher. However, critical pedagogy, claims Norman Denzin, "requires citizens and citizen-scholars committed to taking risks, persons willing to act in situations where the outcome cannot be predicted in advance" [9]. Bell hooks has accurately acknowledged the reluctance of many teachers "to see the classroom change, to allow for shifts in relations between students" between students and me their teacher [8]. Hooks and Denzin remind me that using methods of critical pedagogy transforms the educational power structure and if I aspire that my class will contain "persons jointly working together to develop new lines of action, new stories, new narratives in a collaborative effort," my authority as the class teacher will be threatened [10]. To create these changes teachers should overcome their fears, work harder, be adventurous, imaginative and spontaneous [11].

3 Environmental Education in Israel

In Israel, there is a separation between the Jewish education system and the Arab Israeli education system. The decision for this separation has both practical and ideological explanations. Most schools in Israel and throughout the world are appraised by their ability to transfer a large quantity of information to the students over a 12-month period. As the amount of theoretical material is very large and the time teachers have to teach is minuscule, it is high impossible to ensure that students understand the material during the lesson. Such an issue of teaching a lot during insufficient time causes teachers to develop certain teaching patterns during the inaugural years of their teaching careers. Such a pattern is built by training teachers during their teaching studies. When a teacher approaches the class for the first time, he/she uses this specific pattern. If such a pattern does not work, the teacher changes and improves it according to how he/she supposes it will be more efficient in class. The pattern holds in the teacher's mind and nature and defines a path to his/her future lessons [12]. As teachers face time pressures, it is difficult for them to change and modify this pattern. Moreover, each

individual is different, so many pupils fail to absorb the study materials—an aspect that affects the pupil later in his/her learning. Due to the lack of time and erosion of teachers, teachers' lectures are delivered in a monotonous, tedious, and even destructive manner in terms of curiosity and resourcefulness of the child [13].

According to Ruth Wilson (1994), teaching environmental education in early childhood includes the growth of a sense of curiosity as well as appreciation of the beauty and mystery of the natural world. Education also includes developing problem-solving skills and developing an understanding and appreciation of the world around us. The goal of environmental education is to develop a population that recognizes environmental topics. Studies have shown that most individual positions are formed at a very early stage of life, meaning the teaching environment in early childhood is of great importance [14].

Advances in elementary school curriculums supply theoretical lessons about energy efficiency; such an approach does not hold much information according to the topic, indicating that younger pupils' level of knowledge is really depressed. In order to ensure effective learning about energy efficiency, students—especially younger age groups—must be taught utilizing a short piece of theoretical lesson that only offers the fundamentals and provides experiential experiments that illustrate scientific principles. Based on a teaching activity that motivates students to analyze and research the subject of energy efficiency, it is possible to search for answers and solutions about the environment. Such activity gives even the weakest students the motivation to study the subject in a fun way [15] and allows the students to learn at different levels—namely, hearing, feeling, and sight—thereby providing them with a practical and theoretical understanding of the material that, by the end of the process, is stored in their long-term memory for future use in their everyday lives. After the lesson, the pupils become representatives among their family and friends circles. Such representation is a significant persuasive power related to environmental education for pupils' circles in their various institutions, making it possible to spread the knowledge and information to a big portion of the population in a short time.

4 Holon Institute of Technology

The Holon Institute of Technology (H.I.T) focuses on teaching exact sciences, engineering, educational

technologies, technology management, and design. It performs theoretical and practical research. The institute trains scientists, engineers, managers, and designers. To prepare students for these positions, it promotes close cooperation with the industry.

Environmental involvement and contribution to the society are also reflected by the promotion of environmental protection. Consequently, the Ministry of Environment authorized HIT as a green campus. In this context, activities are used to teach students about energy efficiency, including the recruitment of a given budget for scholarships and grants for students acting in the sphere of environmental community, as well as courses involving the community in providing theoretical and practical knowledge presented through exciting activities that highlight the importance of energy efficiency and the growth of green systems.

5 Action Learning Course

The action learning course is an academic course which combines academic learning with social activities. These courses deal with processes and social challenges, reveal different ideologies, and develop critical thinking and pragmatic ideas. Students receive course credits and a grade for being part of such course. Participating students enrol in courses that involve action and activities to engage in the experiential learning process, thereby creating a dialogue and cross-fertilization between being taught in the classroom and experiencing the reality in the real world [16, 17]. A learning experience includes meeting with social organizations, institutions, and state authorities and carrying out practical work with diverse populations. Through experience, students strengthen their academic skills, formulate ethical attitudes toward reality, develop professional and civilian perspectives, and realize how they can influence their surrounding in the present and hereafter.

5.1 Social Involvement Unit

One of the many goals of the Social Involvement Unit, which is a part of Dean of Students Office, is to promote social involvement of students and staff in the community. It also promotes weak applicants and students at the institute by offering mentoring, tutoring, emotional support, guidance to learning, and adjustments in school. Over the years, the unit has worked in many education and welfare arenas to promote immigrants, youth, and more. The Social Involvement Unit serves as a professional center to encourage and promote the social impact of students

and staff and to leverage knowledge, expertise, and human capital for the benefit of the community through social involvement projects and course actions involving meaningful activities.

5.2 "Green Ambassadors"

The action learning course is named "Green Ambassadors", and the goal is to educate the next generation environmental education. The course is divided into 6 groups; each group contains 3 to 5 Israeli Hebrew speaker students, whose goal is to provide information on environmental to Arabic school with Arabic speaker pupils'. The teams of five -graders and six -graders from "Al Omariya" school in Ramla have been chosen to take part in the project. This article presents a new challenge. Teach environmental issues with language difficulties. Israeli Hebrew speaker students, teach environmental education in Arab school with Arabic speaker pupils'.

Under the guidance and supervision of Dr. Hen Friman, "HIT" has built an innovative course that combines action and activities to increase the awareness and accessibility of the community in an experiential way. The end goal is to create "Green Ambassadors"—children with a high level of environmental awareness. This course is divided into two parts. First part, focused on frontal teaching, delivers knowledge from extensive environmental fields to students. The second part of the course shows how the theory becomes practical and concrete. At this stage, students are asked to introduce to the five -graders and six -graders from "Al Omariya" school in Ramla, lesson with language barrier focused on presenting the environmental issues: Energy efficiency (saving), solar energy (Fig.1), energy conversion, air pollution, water pollution, waste, recycling (Fig.2).



Fig.1: Presenting the principle of solar energy



Fig.2: Recycling an old tire for a chair

In whole-class instruction, only one person can speak at a time, and shy or slow-learning pupils may be reluctant to speak at all. When pupils work in groups of two to four, however, each group member can participate extensively, individual problems are more likely to become clear and to be remedied, and learning can accelerate. With justification, co-operative learning has become widespread. Not only can it increase academic achievement, but also it has other virtues. By working in small groups, pupils learn teamwork, how to give and receive criticism, and how to plan, monitor and evaluate their individual and joint activities with others. It appears that modern workplaces increasingly require such partial delegation of authority, group management and co-operative skills. Like modern managers, teachers may need to become more like facilitators, consultants and evaluators, rather than supervisors.

5.2.1 Language difficulties

During the second part of the course that shows how the theory becomes practical and concrete. The Israeli Hebrew speaker students' need to teaches Arabic speaker pupils from the five -graders and six -graders at “Al Omariya” school in Ramla. The Israeli Hebrew speaker students' transferred the material in the form of experiments, images and were also required to translate the teaching staff at the school (Fig.3).



Fig.3: Certificate in two languages for the course participants

In January 2018, 160 pupils from “Al Omariya” school in Ramla gathered at an impressive ceremony held at HIT Holon Institute of Technology, where pupils received the certificate - a child with high environmental awareness (Fig. 4). The HIT students get Certificates of appreciation and appreciation for their great contribution to the success of the course (Fig. 5).



Fig.4: Pupils from the “Al Omariya” school in Ramla received the Certificate



Fig.5: HIT students get Certificates of Appreciation

6 Conclusion

Concentrate efforts on the improvement of education for sustainable development marked the beginning of a serious reform to cover all types of education and training from preschool to vocational and post -university.

The action learning course Training "Green Ambassadors" in the Community powered by the Social Involvement Unit HIT that in this way we can contribute to society and future generations.

The investment of great effort and good will of students can also overcome the language barrier

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