



ENHANCING SUSTAINABILITY THROUGH EDUCATION, STARTING AT THE BOTTOM

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Abstract

Sustainability is an issue that looms large over all our actions. Since most people tend to have children – even the country with the lowest fertility rate, South Korea, has a rate of 1.11 children per woman (WPR, (2019)), it is incumbent upon all of us to leave behind us a viable planet. Thus, sustainability is indeed a must. Attaining this goal depends, to a large extent, on education. Most countries have specified results that they wish to achieve, and the dates by which those results must be achieved. In Britain, for example, the goal is: “By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development” (CPTRUST (2016)). Similar goals have been set by other nations and institutions. In order to achieve the desired results, we need to affect deep changes in human behavior. One of the best ways of doing that is through education. The educational process can – and perhaps should – be addressed to people of all ages, as people have an effect on sustainability on a daily basis, but a long-term change in attitudes and behaviors requires a long-term educational effort. In Israel, the topics of sustainability is being introduced into the curriculum of colleges of education, training the next generation of teachers. By starting this way – that is, at the bottom rung of the formal education ladder – and training the teachers of tomorrow who will, in turn, educate the young, we hope to bring about the desired changes.

1. The Sustainability Challenge

Sustainability means leaving behind us enough resources to support the continued welfare of the next generations. This has to be done while maintaining (among other things) the diversity, productivity and vitality of those resources. This notion, while seemingly natural and self-evident, is not a very old concept in terms of human history. The first time the term was used was in 1924 – less than a century ago (Webster (2019)).

It is a compelling concept, since humans possess an inborn desire to leave a better world for their children and their children's children and so forth, for endless generations to come. Hence, the very idea that some human activities throughout the years are compromising this process came as somewhat of a shock to many people when the issue was first brought to their attention. Yet, even when people know that their actions endanger sustainability, they frequently find it hard to stop those actions. This is due to many reasons: economic necessity (even if for the short term); lifestyles; religious beliefs; political forces and more.

The difficulties with attaining sustainability are numerous. Included among them are:

- Livelihood of contemporary communities depends on unsustainable exploitation of resources
- Economic gains from unsustainable exploitations – over and above those required to ensure survival
- Increased urbanization
- Resistance to change
- Culture (See, for example, Komatsu, Rappleye and Silova (2019) for a discussion of the relationships between culture and sustainability)
- "Natural justice". For example, for a discussion of Chinese sense of their entitlement to create pollution, as a result of the fact that they have started later than others – but they are entitled to create their 'fair share' of pollution in order to catch up to the standard of living of the developed world. (Friedman (2006)).
- Beliefs that humankind cannot, and perhaps should not, try to affect environmental changes. That we are essentially insignificant in the universe to have any meaningful effect on the ultimate outcome of natural, universal processes.¹

Those of us who believe that human actions can and do affect the environment (even if only for a relatively short term), constantly seek better ways to reduce our environmental footprint and to adopt behaviors that will enhance sustainability and make it a continuous part of our daily routines. It is clear that changing behaviors is a long, tedious and extensive effort, since the desire is to make those behavioral changes ingrained in entire populations. While there are many approaches that may be adopted towards achieving this goal, there is no question that education is a foremost tool among them.

¹ An interesting discussion along these lines can be found in Gottlieb (2008), although he continues on a different path.



Education, of course, happens all the time and everywhere but when a society wishes to embed a set of values in the population as a whole (or at least in a large part of the population), a good place to start is the formal education systems². Starting at an early age – pre-kindergarten – and continuing all the way through elementary school, middle school and high school – will definitely make the concepts familiar and comfortable and thus will help in achieving a better understanding of the ideas and the behaviors that are derived from the awareness that sustainability is an important concept, one worth advancing.

To do that, the teaching staff must be equipped with the concepts, tools and teaching methods of sustainability, much like any topic taught in schools everywhere. This, of course, necessitates that the teachers be educated and trained in this topic. This is where the teachers' education programs come into play.

In this paper we will describe the efforts of some leading teachers' education colleges in Israel are making in order to attain the goal of making sustainability part of the core values of the next generation of teachers. We believe that by taking this approach we'll be able to start the change from the bottom – from the kindergartens through high schools – and consequently the coming generation will be better prepared embrace sustainability as a natural and persuasive approach and to take the steps that sustainability requires, and will not see them as a burden but rather as a sacred obligation.

² Informal education also plays a part in this process but will not be discussed in this paper.



2. World experience

Sustainability is, naturally and for obvious reasons, a global challenge. Indeed, many nations are actively pursuing various programs and initiatives to improve the awareness and the compliance of their citizens and their industries with sustainability laws and regulation, and many organizations advocate going even further and assuming additional responsibilities even if those are not legally binding. Sustainability is also a thriving research topic. A recent search of Google Scholar with the word "sustainability" produced 4,320,000 results, and with the phrase "sustainability education" the search produced 3,120,000 results. It is interesting to note, in passing, that the number of results reported by Google Books with the word "sustainability" is about 21,000,000. It is quite ironic that so many works extolling sustainability are committed to paper...

One of the better-known organization working in the area of promoting sustainability is GRI (Green Reporting Initiative). As its webpage proclaims "GRI is an independent international organization that has pioneered sustainability reporting since 1997." (GRI (2019)). This organization has developed standards for reporting corporate activities that are related to various environmental (and social) issues, and exhibiting their progress towards conservation, usage reduction and recycling of critical natural resources. Its web site boasts that "... 93% of the world's largest 250 corporations report on their sustainability performance." (GRI (2019)). Indeed, (sustainability reporting has now become quite common for leading corporations. Even Forbes, the leading business magazine, usually extolling the virtues of capitalism and big business, publishes an annual list of "The World's Most Sustainable Companies" (Forbes, (2019)). This is a list derived from the annual reports of about 7,500 companies with sales of over 1 Billion US dollars a year. This is a sort of proof that sustainability is regarded as good business in addition to being the right thing to do. While it is a good thing that sustainability is receiving more attention, it would be even better if the term – and, of course, the behavior of most people and most organization took into account the various aspects of sustainability as a routine issue, one that is an integral part of daily activity. For such a deep transformation to occur, human behavior should be changed.

Obviously, wide-ranging, long-lasting, effective changes in human behavior are the result of education. Moving the world towards making sustainability an integral part of every decision-making process, at all levels of human activity is no exception. As clearly stated in Blewitt (2013), "... in 1992, education was identified as one of the central forces of sustainable development during the 21st century".

Of course, education is a continuous process starting at birth and ending when people pass away. But when we wish to affect this process, we need a purposeful effort. We need to try and ingrain the values of sustainability so that they become part of our day-to-day natural conduct. We need, as Schultz and Zelezny (2003) say "... [to] call for social values to be influenced or shifted to



drive change necessary for a sustainable future". In Israel, this effort begins in the public education system. Obviously, in order to do that, teachers must be trained to teach this body of knowledge and to instill the concepts and the details of sustainability in their pupils. This approach will be described in the next chapter of this work.

3. The Israeli experience – starting at the bottom

"The Israeli Ministry of Education regards education for sustainability as a central objective and sets a target of getting a program implemented and integrated into the education programs of the formal school system. Since 2012 a national sustainability education team from the Ministry of Education is working in cooperation with staff of the Ministry of Environmental Protection and green organizations to prepare and implement such programs. These programs will also strengthen democratic values and social education. They aim to develop the attitudes and behaviors that foster responsible environmental and social activism leadership and that will assist in adapting the existing curriculum to the changing reality (MOE)"³.

In the past six years existing education programs have been developed and applied in four aspects of educations: knowledge, skills, values and behaviors. These programs combine educational principles - environmental and sustainability principles - and the curriculum in the education system (MOE). They are intended to achieve the following specific goals:

1. Strengthen education for democratic, social and environmental values
2. Develop environmentally responsible citizens
3. Encourage environmental leadership and activism
4. Attain an optimal design of the educational climate
5. Recognize within the curriculum to the changing environmental reality in Israel and in the world

3.1. Preparing the colleges of education for teaching sustainability

Realizing that teachers are change agents, it was thought that teachers' training colleges would be a very good starting point for bringing about the desired changes. Given the well-known fact that actions speak louder than words, the campuses where the teachers' training takes place should serve as an example and become sustainable and environmentally friendly. Campuses therefore may apply for 'Green Campus' certification.

a) Green certification

This government-issued certification is given to an education institute which:

- Integrates environmental content and environmental topics in its courses and dedicates at least 30 hours in a year to these topics.
- Supports a sustainable lifestyle in the educational institution, which includes: using resources wisely; properly handling infrastructure and operations in the field of education; and promoting sustainable behavior among its staff and its students.
- Presents green visibility - including wall panels signage, website presence and more.
- Is socially involved with its community.

³ Original in Hebrew, translated by the authors.



- Has an active Green Leadership committee - consisting of representatives of students, teachers, administrative staff and members of the community.
- Offers a teachers' training program in environmental and sustainability issues.

In addition, the candidates for Green Certification must show that they conform with the following requirements:

- They are streamlining the use of, and saving, resources and they are reducing their ecological footprint.
- They have established a viable "Green Council" – an active committee, composed of all members of their community – faculty, students and administrators - that initiates and coordinates the green activities on campus and around it.
- They are designing and adding courses on environmental issues to their curriculum.
- They are promoting environmental community projects in cooperation with students and other members of the community.

When an institution believes it has met the standards set above, it applies for an audit by a special committee of the Ministry of Environmental Protection. If it passes the audit successfully, it is awarded the Green Campus status. This also makes it eligible for some financial support.

It is important to note here that the process of making a campus green, and eventually eligible for the Green campus Certification, is an undertaking involving the college staff, both academic and administrative, and its students. In addition, there are external organizations that take part in this effort: local authorities, the Ministry of Education, the Ministry of Environmental Protection, green townships society for the protection of nature and the Green Groups. The institution receives some training in order to understand what it needs to do and how.

Each educational institution that starts the training program and receives green certification undertakes to conduct itself according to seven principles of the spirit of sustainability:

- i. A team led by a committed manager is involved and gives a personal example.
- ii. Promoting a respectful and caring relationship with man and the environment
- iii. The institution is constantly working to reduce its ecological footprint and consumer culture.
- iv. Place-based learning - learning and implementation relevant to the community space and learning spaces are maintained in the institution.
- v. An institutional work plan, which includes a vision, events, activities and points of reference throughout the year is maintained.



- vi. Its curriculum emphasizes broadening the knowledge base and experiential pedagogy: meaningful, critical thinking, active extracurricular learning, research and problem solving in the environment, and more.
- vii. The institution conducts ongoing dialogue within its community and with external communities of stakeholders, while expanding its circles of influence and disseminating knowledge to encourage sustainability and cooperation.

b) Second phase of training - sustainability in a changing world

After achieving the Green Certification, the institution goes into the second phase of training. That is a joint educational program of the Ministry of Education and the Ministry of Environmental Protection, which was first offered in 2011.

The objectives of this phase are:

- To strengthen the infrastructure of environmental knowledge (concepts, principles and processes) in the spirit of education for sustainability.
- To develop a pedagogical language on social and environmental issues.
- To recognize and experiment with a variety of strategies for implementing the principles of education for sustainability, with an emphasis on meaningful learning and action for the environment.
- To recognize and experiment with significant teaching-learning strategies that promote education for sustainability (extracurricular learning, environmental issues, place-based learning, etc.).
- To develop an action plan for educational initiatives around a selected issue. The initiatives focus on departing from the routine methods of teaching in various fields of knowledge and carrying out other activities.

3.2. Sustainability programs in Israel teachers' education colleges

There are over 20 colleges of education in Israel⁴. All offer a B. Ed. Degree, and most also offer master's degree studies in education, teaching certificate studies, diploma studies, training and enrichment courses in the fields of education, teaching and training, as well as courses and supplementary courses for teachers (supplementary training).

Candidates for a bachelor's degree in education (B. Ed.) find a wealth of training programs and specializations that confer that degree along with a teaching certificate in the field of study. Among the areas offered by the colleges are: special education, preschool education, physical education, elementary and secondary school education, and more. Students of education acquire theoretical and advanced knowledge in progressive teaching methods and in various disciplinary topics. Each student chooses her discipline - science, art, literature and more. The studies also include practical training in elementary (or primary) schools, high schools and kindergartens. Graduates receive a teaching certificate that enables them to obtain a teaching license, which will enable them to work in diverse educational institutions, both public and private. Following is a

⁴ This number is in the process of being halved, by state-mandated mergers.



description of some programs offered in sustainability in those colleges of education. The institutions will be divided into two types, according to the structure of their sustainability curricula: institutions with a structured educational track and institutions where this subject is intertwined into the various study tracks:

a) Special tracks

- Environmental and Sustainability Studies Track - M.Ed. In environmental education at Kibbutzim College (SMKB, 2019)

The track is intended for outstanding students who wish to develop their research capacity in the field of environmental education and sustainability education, and those who intend to pursue their PhD studies in these fields. The track focuses on:

- Strengthening the understanding of educational processes taking place in Israel in the field of environment and sustainability as part of the global effort to adopt a sustainable lifestyle;
 - A critical examination of the educational processes taking place in the environmental field in Israel in order to improve the existing conditions, to change and improve various aspects according to research findings
 - Examining the characteristics of the field of environmental education in Israel in social, cultural and pedagogic aspects in a local context and in comparison to the world of study and program structure in the research track.
- The Sustainability Division of the B.Ed in Education - David Yellin College (DY (2019))

The division was developed by the Institute of Sustainability, which operates in the college. The guiding principle of the Division is that Education for Sustainability provides areas of knowledge, skills and a discussion of values needed to understand the social-environmental crisis of the 21st century, and leads to the search for ways to correct it and create a culture Sustainable development for our well-being and the welfare of future generations.



b) Integrated content

Other colleges of education chose to integrate the issue of sustainability and the environment as part of their core curriculum.

- Levinsky College of Education
 - Various programs have been integrated into the different tracks, starting with the "ecological garden" course for early childhood education, through the sustainability course, the children's course, the course on ecology and the environment. Each course focuses on the influence of man and his involvement in the shaping of the environment, based on the view that we should look out for the future of our children, and besides that we must take responsibility for our actions and those of previous generations. In addition, in line with Levinsky College of Education' vision that the college provide access to quality higher education, which nurtures sensitive educators, thinkers, researchers, leaders, initiators, creative people and community activists' a special program was developed in called DVASH⁵. The program is designed for students in their second year of study, and is divided into groups of 10 students, all led by students and supervised by staff members. The students are required to initiate, operate and evaluate a social educational initiative that will have a significant added value for the target population, and to present a system vision that includes cooperation with wide-ranging entities. Example initiatives are:
 - Accessible at the College - raising awareness of accessibility issues at the college, while developing patience for the special needs and rights of students with disabilities.
 - Green Initiatives, like: If we do not recycle it will not remain - an initiative that encourages recycling and reuse; ecological fish pond; the establishment of exhibitions of environmental art, in order to promote topics such as recycling, green building and environmental awareness and expose the public to them.
 - Urban agriculture: an initiative aimed at bringing the college's residents closer to the field of agriculture and growing edible plants in the vicinity of the city's home.
 - Nature in the city: the students try to raise environmental awareness to the natural green areas surrounding the city and to preserve the animals in these areas.
 - In suffering all are equal - an initiative that raises awareness of the intelligent consumption of products that have not been tested on animals.

⁵ An acronym in Hebrew that stands for " things that you see from there".



There are more initiatives in the same spirit, all aimed at improving both the students' sensitivities to issues of sustainability and to actually help the environment during their years of study.



4. Summary

This paper presented an approach to sustainability that, we believe, enhances sustainability. We showed how education, well known to be a major force in affecting social and cultural changes, is changing in order to include this important topic as an integral part of teachers' training. By this, we do our modest effort to ensure a more sustainable world for the coming generations – a holy obligation.



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