



Directorate for Education

Centre for Educational Research and Innovation (CERI), OECD

## Innovative Learning Environments (ILE)

### INVENTORY CASE STUDY

### Mevo'ot HaNegev High school

Israel

*This public middle/high school for grades 7 to 12 (age 13-18) is a model school of the Israeli Ministry of Education. It has a shorter school week (5 days) and longer lessons (60min) than is customary in Israel, to allow deeper engagement of the students during the lessons. There is emphasis on project-based learning, for which students work on a self-chosen question in the frame of an extensive study unit on a basic theme. Students then show their results in a form of their choice in 'performances of understanding'. Most of the subjects are united in two central clusters, Humanities and Science, which are coordinated by a homeroom teacher and one other teacher respectively. All teachers have personal and team preparation hours in the schedule, and school teachers and external specialists serve as pedagogical mentors. To create close teacher-student relationships, the number of learners that a teacher meets each week was reduced from 120 to 60. There is also extensive use of ICT, with an online learning management system ('virtual campus') where teachers and learners communicate and store learning products and content. All learners and teachers were equipped with a laptop. The school emphasizes environmental education and aims to familiarize its students with democratic values and a range of cultures and identities.*

This Innovative Learning Environment case study has been prepared specifically for the OECD/ILE project. Research has been undertaken by Dorit Tubin, Nava berg and Orna Heaysman from Ben-Gurion University of Negev under the supervision of Dorit Tubin, following the research guidelines of the ILE project.

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אוניברסיטת בן-גוריון בנגב  
הפקולטה למדעי הרוח והחברה  
המחלקה לחינוך



Ben-Gurion University of the Negev  
FACULTY OF HUMANITIES AND SOCIAL STUDY  
DEPARTMENT OF EDUCATION



**THE OECD/CERI INTERNATIONAL STUDY  
Innovative Learning Environments (ILE)**

**Mevo`ot HaNegev High School  
Kibbutz Shoval, Israel**

**International Research  
of Innovative Learning Environments**

**Case Study**

**Research Team**

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**April 2012**

**This article refers to both men and women and uses masculine pronouns solely for linguistic constraints**

## Introduction

In recent years Western countries have been shifting from industrially controlled systems to information-based systems in which lifelong learning and innovation capacities are key requirements. In such societies individuals are required to become self-oriented learners, to be able to look for expert knowledge in a variety of fields, to undergo career changes and to make meaning of their life. These capabilities and competences are important not only for economic prosperity, but also for promoting community involvement, democracy, and egalitarian communication. Yet, despite these twenty-first century challenges, the majority of schools still operate as they did in the early twentieth and do not encourage deep learning and the skills needed for engendering innovation and creativity.

Mevo`ot HaNegev - the school described in this case study report – succeeded in developing an innovative learning environment (ILE) promoting the skills necessary for the citizens of tomorrow while operating within the constraints of the public education system in Israel. The object of this study therefore, is to examine the learning environment in Mevo`oth HaNegev and its contributions to the preparation of its graduates to life in the twenty- first century.

## Research Method

To investigate a complex and multi-dimensional learning environment we chose the case-study method, which follows a uniform research protocol in all countries. This method allowed us to compare cases and to present the uniqueness of each individual case. The leading research questions focus on the goals of the learning environment, on characterizing patterns and on the quality and essence of the learning and its effects. The effectiveness of the learning environment was examined in relation to learning principles required in 21st century skills, such as: generate, process and sort complex information; to think systematically and critically; to take decisions weighing different form of evidence; to ask meaningful questions about different subjects; and to be able to identify and solve real-world problems (Dumont and Istance, 2011: 23).

*Choice of School* – choosing the school was based on international research criteria, requiring the selection of schools displaying innovative learning environments characterized by: a distinctive approach to the ways that learners, teaching resources and different ‘technologies’ and facilities, inter-relate; an intentional departures from the traditional approach; and explicitly aim at address the range of cognitive, meta-cognitive and socio-emotional learner needs. Moreover, the innovative learning environment is grounded in a broad organizational infrastructure, it is independent of tuition expenses or the charisma of the entrepreneur, and present the ability of learning organizations, formally or informally evaluating their own practice for continual improvement.

*Research Tools* – these include interviews with the leaders and operators of the innovative learning environment at the school; observations of learning and use of resources; focus groups and interview with the learners; and analysis of school records and documents. All in all interviews were taken with the Principal, two teachers, two pedagogic mentors and three other teachers. A focus group with 6 ninth graders was conducted, a tour to the greenhouse ecosystem was conducted, and two observations of lessons in the innovative environment were conducted. In addition to that document analysis was conducted,

including evaluation reports on the innovative method in 2009-2011 (Bar on and Lozky, 2011) and other documents.

*Data collection* by the research team took place in May-June 2011, in the scope of about thirty hours. Data analysis was conducted in accordance with the research questions while concurrently analyzing and organizing the data into appropriate categories. The following sections present the ILE rationale, the nature of activities and the results, as they emerged from the collected data and analyzed in the research.

The case study is organized around the four following issues, designed to present the uniqueness of the innovative learning environment in Mevo`ot HaNegev: 1. The background and the rationale of the innovative environment – context, history, background and rationale; 2. Patterns and characteristics of the learning environment; 3. Learning activities in classes, workshops, laboratories or non-formal environments; 4. Effects and efficacy of the innovative environment – the results and implications related to 21st century skills.



## 1. Background and Rationale of the Innovative Learning Environment.

The innovative learning environment was developed at the Mevo`ot HaNegev middle/high School. In order to understand it and its fullest implications this chapter is organized around the Israeli context in which the school operates, the school context where the Innovativeness was developed and the innovative rationale.

### The Israeli Context

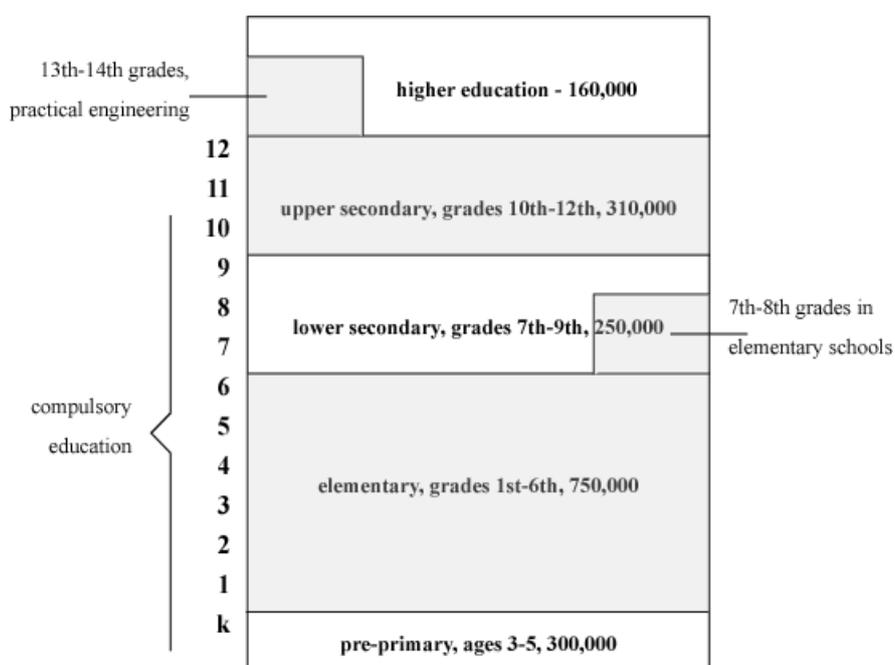
Israel has a total population of 7,500,000 (80% Jews and 20% Arabs). It has 1,500,000 learners and 4,200 schools, divided between the national secular sector (58%), the religious sector (19%), and the independent Jewish Orthodox sector (23%). Compulsory education begins at age 5 kindergarten classes and continues to grade 10, but free education continues throughout to age 18 and the twelfth grade, with 93% of the learners completing 12 years of education (Israel Central Bureau of Statistics, 2008).

Israel Education system is highly centralized and is controlled by the Ministry of Education. Although there are no private schools in Israel and all schools are budgeted and supervised by the Ministry, the orthodox sector and another 4% of the schools defined as non-formal recognized schools and thus allowed to raise additional funding and change sections in the national core curriculum.

Elementary school education in Israel is usually six years (grades 1- 6, ages 6-12). Post secondary education is also six years (grades 7-12) having structures such as the junior high school (grades 7-9) and secondary high schools (grades 6-12). Practical Engineering learners learn two more additional years (Figure 1). Most primary schools have an registration area and most post primaries are comprehensive high schools. Generally there are very few vocational schools and the vocational divisions are offered in the frame of the comprehensive secondary high schools. Parental choice in Israel is limited and controlled and is prevalent mostly in the large cities.

The high schools are comprehensive and allow a wide range of departments, levels and disciplines, all leading towards the national matriculation exams, which constitute a major entry ticket to many jobs and to the higher education institutions. In 2010 the entitlement to matriculation exams among twelfth graders who took the exam was 66%.

Figure 1 –Israel Education System



The Israel education system assesses schools achievements by administering national exams in the 4<sup>th</sup> and 8<sup>th</sup> grades, and by the matriculation examinations in the end of high school. A continuous decline in the achievements of Israeli learners in international tests has pushed in recent years a growing attention to focusing on academic achievements, without neglecting high-order thinking skills and education for social values.

Mevo`ot HaNegev school, presented in this study, constitutes a particularly successful example of a public school that succeeded in developing a unique and challenging learning environment within the normative conditions of the Israel educational system.

### Mevo`ot HaNegev high school

Mevo`oth HaNegev is a public, six year (ages 13-18) high school. It is situated in Kibbutz Shoval and its one floor classrooms are spread among spacious lawns, trees and blooming bushes. The school serves middle to high socio economic population, whose children come from the rural municipality communities (45%), from the Bedouin population in the area (10%) and from urban settlements (45%). In 2011 the

school served 560 learners and had 60 teachers. It is headed by the principal Ido Argaman, who has been running it now for thirteen years.

In the early 2000s, following the decline number of pupils and the problem of the school ownership, the question of the school sustainability arose. It then became clear to the principal that in order to go on, the ownership issue had to be resolved, a direction for an educational innovation had to be found, and educational excellence had to be made manifest. The search for innovative education was supported by the feeling of the educational staff that the traditional pedagogical approaches - the frontal teaching and delivery pedagogy (in which the source of information is the teacher, who delivers it to the learner) - do not enable the realization of the learners' potential.



After several years of search and learning, in 2008, the leading staff has started the implementation of the innovative program, which emphasizes Environmental education, active citizenship, problem\ project-based learning (PBL) methods and education to understanding. The ICT-based innovative environment allows the learners flexible and creative uses of information, the ability to check and transfer the knowledge from one context to another, and to focus on the learner and the learning processes.

The number of subject matters learned a week was reduced from 8 to 4 - 5; the relationship between teachers and learners became more personal; learning is oriented towards performance for understanding, studying becomes more personal and autonomous while the teachers' staff accompanied, mentored and supported the learners. All learners and teachers were equipped with laptops allowing ongoing activities in the Learning Management System (LMS) developed by the school, in which they were working actively in the promotion and performance of various projects.

These processes led to a number of significant outputs. Percentage of Mevo'ot HaNegev graduates who earned the Matriculation Examinations is about 80%, which is significantly higher than the national average of 48%. While the Innovative pedagogy did not contribute directly to this increase in percentage, it had led to other important achievements, as detailed in evaluation reports conducted on the school (Bar-On and Ofir HersHKovitz, 2010; Bar-On and Lozky, 2011): Learners perceive the school in a highly positive light, they report it is fun to learn there, that the teaching methods are different and unique, the contents are interesting and there are good relations between teachers and learners. Moreover, the assignments and projects are challenging, improve learning and promote skills such as presentation before an audience, investigation, team work, giving fair feedback and encouraging curiosity.

Mevo`ot HaNegev is used as a model school in the Department of Experimental Schools at the Ministry of Education. Over the years it has achieved many more awards, including winning the National Education Award (2009); four beauty star awards from the Council for a Beautiful Israel (2008); achieved a very low learner dropout level (decile 2); attained “Excellence” on the Climate subject matter in the Efficiency and Growth School Indices biennial national exams, was certified as Environmental School; received an Environmental Education Award from the Minister of Education and Minister of the Environment (Exp.Schools Division, 2011).



The school principal (left), accepting the National Education Award from the Israeli president (center), and the education minister

### Rationale of the Innovative Learning Environment

The Pedagogical development in Mevo`ot Hanegev began as a response to a number of educational weaknesses and the fact that such schools leave no place for thinking, neither for the teachers nor the learners. Learners were prepared for the examinations frontally and were under pressure to finish the subject matter; teaching was flat and technical with no place to develop the learning itself. Despite the high achievements, the school principal felt that a significant change was needed in order to exploit the enormous potential of the learners and the teaching staff.

The goal of the ILE, which was developed gradually, had been to increase the engagement of both teachers and learners in the educational performance, as they concurrently shifted from dealing with teaching to focusing on learning. The educational staff developed, with the aid of outside instructors, an approach that provided answers to the three elements of learning of the 21st century: cognitive learning (knowledge); meta-cognitive learning (an understanding how to learn and how we acquire information); and social and emotional development (the entire area of personal and interpersonal communication), according to the following specification:

**Cognitive Learning** - the main theme promoted by the school is “from improving oneself to improving the world”, or in universal terms, it advocates environmental literacy, sustainability development, and sensitivity to social and environmental justice. In order to promote these issues the school created two clusters of subjects – the Humanities, and the Science and Environment – which allow dealing with complex information of different contexts. Thus, for instance, in the 7<sup>th</sup> grades, teachers developed a curriculum on family issues based on the story of Hagar and Ishmael from Bible subject- matter, using art as well and linking the subject to changes in the family in the modern world.

**Meta-cognitive learning** – in order to increase learners` awareness of the values that lie behind their actions as well as of the way they learn, and to increase their engagement and responsibility for learning, the school developed a project-based learning strategy. In this method the learners choose a certain point of reference in a general subject, for instance – water and ecology; they then ask questions about the subject, such as what causes water pollution, they search for information and answers, they uncover basic

assumption, challenge them, formulate insights and illustrate their learning by performances of their understanding (i.e., linking ideas to other ideas and apply them to new contexts). They present their outputs by various means to their peers and the entire community. The awareness of how nature processes take place also reinforces the education for active citizenship as well as critical thinking – two more goals the school strives for.

***Social and Emotional Development*** – though learning is an internal process, relationships and interactions contribute much to it (Bransford, Brown & Cocking, 2000). In order to develop an environment that supports these processes, Mevo`ot HaNegev employs three key directions: *First*, the Choice. The principle is based on having a small choice between subject matter and a large freedom of choice within the subject. In this way the learners develop a motivation to study a subject that interests them, they negotiate and create partnerships with their peers, and take responsibility for their learning process; *Second*, a connection to where the learner is, with respect of both subject and relevance. The choice, the question asking and the search for information enable the learners to begin from the point of where they are and from there to move forward, while they are dealing with the aspects that are relevant to their world and their needs. *Third* is a very close relationship with the teacher. By changing the school schedule and allow the students many hours with few teachers, introducing LMS (learning management system) technology to support course website, and equipped all teachers and pupils with laptops, a meaningful relation can develop between teachers and learners. Moreover, the teachers create a virtual environment accompanying the work in class and the learned subject, enabling thus an additional layer of communication with the learners, together with a meaningful support of the learning processes. These three circles led the school into meaningful changes in the processes of learning and teaching, as shown by the following findings:

## 2. Characteristics of the Learning Environment.

The ultimate goal of the ILE is to develop learners who thoroughly understand themselves and their environment. Application of the innovative environment principles began in 2008 in grades 7 and 10 and was extended in 2009 to all classes. In 2011, the current study year, the innovative environment was active in the entire school, by means of the following procedures:

### Organization of time and space

***Structural change of the lessons schedule*** – in order to enable a more meaningful interactions between learner – teacher – information, and to support searching, thinking and creative processes, the school changed the weekly schedule structure, the lessons schedule and the curriculum. School week was shortened from a 6 day week (usually the custom in Israel) to a 5 day week, from 08:00 to 14:00. Lesson duration also changed, to five 60 minute lessons a day instead of the usual 45 minutes length lessons. This facilitated focusing and depth together with maintaining a total of learning time and even maximizing it.

In addition, instead of learning 10-12 subjects, as is customary in Israel, Mevo`ot HaNegev reduced the number of subjects by uniting them in two central clusters: the Humanities – Bible, Judaism, literature, history, philosophy, citizenship, history of art; and the Sciences – natural sciences, exact sciences and environmental sciences. Concurrent to these two clusters learners also learn: languages (English and Arabic), Mathematics, art and physical education. A typical schedule of a learner is shown in Table 1.

Table 1: A typical learner schedule

	<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>
8:10-8:00	Good Morning*	Good Morning	Good Morning	Good Morning	Good Morning
9:15-8:15	Humanities	Math	Humanities	Arabic	Humanities
10:15-9:15	Humanities	Math	Humanities	English	Humanities
Break					
11:45-10:45	Sciences	Sciences	English	Art	Sciences
12:45-11:45	Sciences	Sciences	English	Art	Sciences
Break					
14:00-13:00	Math	PE	Arabic	PE	Math

\*Session with homeroom teacher to improve bonding and follow up of teachers and learners.

### Teachers` and learners` Roles

**Leading Team** – The innovative concept, guided by a conception of educating for understanding and of interdisciplinary subjects, is led by a number of key teams. The School created a complex structure of team meetings and training sessions in the lessons schedule as part of the teacher`s role. Meetings on the sphere of knowledge are held regularly and the teachers are reinforced by an array of external guidance. At the same time the school set up a system of internal pedagogical guides, experts in knowledge fields, who guide colleague teachers and are trained 3 hours a week for that purpose. These guides facilitate the curriculum development, they enter their colleagues` classes and together they promote the processes of teaching and evaluation. One of the pedagogical guides reports that “after we plan together as a team I get into the lessons and record what happens. This record enables the team to examine how the planning came into effect and we make improvements if necessary. We call it learning oriented feedback...”:

**The teacher`s role and class organization** – the teacher`s role in the innovative environment has changed: from being the single source of knowledge the teacher also becomes a partner of learning. The teacher`s main role is an overall planning of the learning process, of guiding and directing the learners, of accompanying the learning by personal talks, in small groups and with the entire class. At the same time, in order to ensure that the learners acquire a knowledge base and essential concepts that are necessary for learning and investigation, the teacher also integrates frontal teaching in the lesson matrix. All teachers have personal and teamwork preparation time in the schedule and all receive personal and team support.

Each class is administered by a homeroom teacher who spends 6 weekly hours with his learners on the central theme being learned in one of the two clusters and another teacher coordinates the theme learned in the other cluster. These core teachers work in coordination with the other teachers of math, languages, art and physical education. The teachers work 4-5 days a week and are also available to the learners on the online learning sites.

Each cohort (pupils at the same age) has 3-4 classes. There are about 30 learners in a class. Some of the classrooms are constructed with a partition allowing turning the two spaces into one shared area for two classes together. The school also provides many and diverse learning corners for teamwork and personal work.

## Contents, Assessment and Technology

**Projects based pedagogy** – projects take place in the frame of an extensive study unit around a specific problem/question dealing with basic subjects within which the learners choose topics for research, gather information, find answers to questions and present their conclusions. A project can be theoretical, practical or both. The learners divide into workgroups of 3-4, and then examine, according to their choice, a topic or a sub-topic from the wider subject. During the project and in the end they submit “understanding performances”, i.e. public presentations of the subject learned, intended to illustrate insights and understanding they have reached and which constitute the basis for the teacher’s evaluation.

**New Technology** – Learners and teachers were provided each with a laptop allowing ongoing communication in school and without. All classes were equipped with whiteboards, projectors and loudspeakers enabling the teachers to perform the frontal teaching by using presentations and the internet. The “virtual campus” school system enables every teacher to develop a course website. In this way there are 500 virtual learning environments being used to store learning products and learning environment, they available for use from any place at any time, and provide an ongoing communication between teachers and learners on the various courses and classes.

## 3. Learning Activities

Cluster learning is characterized by working around projects. For instance, in the 9<sup>th</sup> grade the subject of the Humanities cluster was Revolutions that had Shaped Modern Democracy. The teachers presented the French Revolution as an example and assigned six revolutions and their leaders for further investigation. Each learner prepared a short paper on the revolution he or she had chosen and on its leader. In the second phase the learners grouped into work teams on each revolution; they designed a doll dummy of the leader of the revolution, together with period style clothes and appropriate period features such as a period newspaper (To this day does the dummy of Martin Luther, hanging in the office of the pedagogic coordinator, terrify visitors). In the course of the process the teachers work with the learners not only on contents, but also on writing and thought processes, they make sure the learners employ the skills of summing up, summarizing, and of using synonyms for description instead of the specific word.

In another project, prior to the summer holidays when many of the pupils go out to work, they learned about the workers’ rights. During our observation we saw learners with only laptops at the desks, no books, paper or pencil cases, being busy searching for information on workers’ rights. The teacher used the search results of the learner teams in class to deepen general learning, presented relevant internet sites, explained why one site would be better than another, and directed learners who got stuck in non-productive sites. At the same time, learners told us how working together in a computerized environment helped. They uploaded their projects to the site and their peers provided remarks and improvement suggestions. As this is a regional school and learners come from afar they also use voice software to continue working together after school hours. As one school girl described it: “At first I didn’t get used to the computer, but now I won’t get used to paper notebooks...”

As part of the environmental involvement and environmental studies, learners were also required to do practical projects. For example, in the 8<sup>th</sup> grade they built a water purification facility. The construction of the facility was the culmination of a process starting with learning about water as a subject, the global

water crisis, and water contamination including its biological and chemical aspects. At that stage, as proof of their understanding the subject, the learners were asked to prepare a poster protesting water pollution. The posters were presented in a competition, and were judged by the parents and visitors. In this way, when the winning posters were published in the local newspapers, the “performance of understanding” was extended to the wide audience,

Following this, the learners designed and built water purification facilities in another project whose subject was “matter”. The learners built benches out of mud! “The idea is,.” said the pedagogical guide, “to destabilize their conceptual thinking and attempt to make them think about things differently, and to develop their critical thinking.”

Learners also engage in projects related directly to their lives. For instance, following the death of a learner’s mother in a road accident at the entrance to the place, the learners organized and proposed building a traffic circle instead of the dangerous intersection. They met with representatives of the Ministry of Transport, the Public Works Department and the local authorities, learning much as they did about the complexity of traffic infrastructures, including problems of land confiscations and legal challenges (which eventually stymied the process). In another project, called “sowing a giving”, the learners raised vegetables in the vegetable garden and donated the produce to low income families.



### **Assessment and grading**

The complex learning environment also requires complex evaluation and assessment, so that together with grades for assignments and projects the school also issues reports on subjects such as learners’ performance, arriving in class on time, bringing school supplies to class, task performance, teamwork, involvement in learning and in campus activities and so on. Consequently a score 90, for example, comprises ten sub-clauses that refer to the manner of learning. In this way, though all learners are required to submit the same tasks on the same date and undergo the same evaluation process, the content and emphases are unique to each learner.

### **The Importance of the Technology**

The Technological infrastructure is of great importance as the basis for working on the projects. It enables the use of photographs, maps and virtual experiments; it allows the teachers follow up of task submissions and learning where each learner is with respect of work, and it makes possible not only to transfer knowledge but also to manufacture knowledge in a way that was previously impossible without the technology. As one of the teacher said: “It is obvious that if we want to produce citizens of the twenty-first century we must use technology.”

The teachers invest a lot of time and knowhow in developing the course sites that create the ILE which invites a wide variety of information sources, communication with peers and colleagues, and most importantly feedback and a direct connection to the teacher. Before the submission of a task or before an

exam the teachers open forums where they dedicate many hours in response to questions and messages. “It’s rather enslaving” one of the teachers says, adding it’s important to her that the learners don’t talk with each other only through the computer, but use it as an additional channel for an interpersonal activity. After a while, the learners learn to use the computers wisely, and as one of the learners describes it, “At first we were on the computer every break... but now we aren’t. At the end of the lesson we turn the laptop off, get it into the case...they have now blocked Facebook to us ... but we are less interested in it.”

The computing infrastructure creates two major difficulties: the first is a technological one, when the internet does not upload or when the presentation gets stuck in the lesson. Yet this is simple difficulty and the teachers have learned to prepare backup arrangements against that. The more significant difficulty is the heavy load, described by the Junior High Principal as follows:

*You get messages all the time, it’s a huge load, you are respected to respond. This does not happen in conventional teaching. Here you’ve got to understand your proportions and be sufficiently self-assured and consistent with your learners; you can say, 'now see, don’t expect me to respond to everyone on each task I give you, I can’t. You should realize that I will always respond arbitrarily' .. I also don’t want them to get a message of me being absent ...they will stop doing their tasks. But on the other hand it is impossible with every assignment...*

## 4. Effects and Effectiveness of the Innovative Environment

### Effects on learners

One of the benefits of the innovative environment is the successful response to learner diversity. The performances of understanding – i.e., projects designed to show and demonstrate the understanding of the learners, are open to the choice of each learner. Each learner can display his \ her `performances` in the way he understands them, in his own language, his own way and his own pace. In addition, learners become more active and independent as they learn about the projects. They have to deal with problems, think how to solve them and be active. The outcome is curious and enthusiastic learners who are involved and having fun. One of the teachers tells us: “It interests them. They do things with care and passion... they follow me at school ... they come all the time to listen and to ask questions, `can I take this thing so as to build this thing...` and so on ...”



Learning for the projects reinforces collaboration and the learners too reported of many benefits from this type of learning. The material is more accessible, deliberations with friends make the discussions more interesting, each one can help the other and the personal work load is smaller. The advantage is most significant in complex and large assignments where “there is a lot to write, lots of work to find materials, so it’s easier when two persons do it and you are not left with the entire load,” says one of the learners.

Work division, where one learner is looking for materials and the other is writing, enables finishing the task more quickly, with more interest and it is less tiring. Cooperation also enables supporting and assisting friends who do not make it on time, “even though,” the learners added, “sometimes thanks to group work we can sit down comfortably and not work”. Still, the advantages of having a good time, being interested, having fun and enjoying themselves together are much larger. The performances of understanding draw reinforcement of additional skills such as Presentations. The learners are required to present their products in a variety of ways, including posters, presentations and other aids and reach high levels in those skills.

As a rule there is a distinction between the effects of the innovative environment on learners of the Junior Division and those of the Upper Division. In Junior High the environment is more effective as the pressure of the future matriculation exams is still lower. In the ninth grade the learners are curious and enthusiastic to learn, using innovative methods, but in the tenth grade and upward, when the matriculation exams are in the offing, they return in some extent to the old patterns. ‘They resist’, say some of the teachers. ‘They are more conservative than the teachers. They’d rather the teacher come, dictate the material to them and they’d learn it by heart and reproduce it in the exam’. One the teacher tells us: “I remember I had really difficult struggles with them with respect of those dictations. Learners want to be dictated to ...they want the old fashioned way of learning”.

### **Connection between learners and teachers**

Learners we spoke to testify to a warm and meaningful connection that is formed with the teachers. Two learners describe it as follows:

*The teachers really show true interest in what happens to learners, they do want to talk to us, and not just when something - God forbid - happens, or if someone insults someone on Facebook... we talk, speak and more than that ... as if they really know what is happening with each one and not just whether he is doing or not doing his homework.*

*We connect, they with us and we with them ... it is a mutual connection of more than just a fun and pleasantness contact and so, we feel closer and more open to our teachers, we can come and talk and tell...”*

The learners feel that the teachers care about them, that they take responsibility and at the same time do not give up easily. They make sure the learners learn and insist on it. Some of the teachers are also Facebook friends on learners’ walls, which too creates involvement and willingness with the learners, as one of them tells us: “The teachers are involved in our personal life ... it makes you want to come and tell, we feel closer ...”

### **The effect on the teachers**

What marks this school out, the Junior Division Principal told us, is “that here we have teachers who love to teach and teachers who love learners”. The innovative environment, so it would seem, has contributed to this in several ways. The most obvious one is the Innovation. The challenges of teaching, combined with Internet Technologies, the curricula development, guidance and colleague coaching, have given the teachers a sense of rejuvenation and empowerment. One of them tells us:

*I feel I have lots of freedom. One of the things I love in this school is that when I get weird ideas, and I've got plenty of those ... then I have the means to realize them, I have somebody who will give me the budget and the support and help me carry them through.*

Other teachers too referred to the backup and freedom they received when they looked for a better learning environment. One of them said: “the freedom I get is almost too much ... If they knew what I was doing in class I would be already out.”

Still, together with freedom and enterprise there also come loneliness and responsibility. The teachers do not always have someone to consult with and they are aware of the heavy responsibility of passing the learners successfully in the matriculation exams. They appreciate the backup and the freedom, but they also perceive the difficulty, as one of the teachers expresses it: “On the one hand it empowers and strengthens but on the other hand it is scary. It would surely, as a young teacher.”

Innovative Environment has also created different norms for effective learning. One of the teachers says, “The walls of the class have become more transparent. It means we know what is happening in the classes and understand that commotion does not necessarily mean disruption, but activity.” There is more openness, more flow and we are more familiar with what is happening between teachers and learners in general at the school. Most teachers see this positively.

Another thing that happened to teachers in Mevo`ot HaNegev is that from being information ducts they have become information producers. The number of learners a teacher meets a week was reduced from 120 to 60 and teachers were provided sufficient time to develop meaningful processes such as: curricula development, production of knowledge and to encourage knowledge reference conjointly with the learners. As one of the teachers worded it, “You don't feel like a clerk, you don't give orders and you are not an orderly.”

### **Other effects of ICT and technology**

Social effects are among the interesting outcomes of the virtual environment. We conducted a focus group with the learners, where they raised several subjects. One pointed to the support provided by technology to struggling learners, such as learners with spelling errors that are corrected by the word processor, or mentioned the dictionaries and vocabulary lists enabling learners to express themselves better in writing. In addition, the word processor enabled learners who had difficulties in writing or an illegible hand writing to work and be on par with the rest of the group.

As regards keyboard writing, the learners vary. On the one hand they claim it is easier to write on a computer, where everything is fast, accessible, encouraging motivation and even helps getting higher grades. On the other hand, one of them says: “I kind of miss a little the writing in a notebook...” There are also subjects where learners prefer using notebooks and look upon the dependence on the computer as a problem. One of them explains that “should something happen to the computer there'd be nothing I could do... but I can always backup from my friends...”



While parents are to a large extent familiar with the innovative program and support it, they are only partially involved with their children's learning, as is usually the situation in Israel. One of the teachers explains:

*What parents are interested in is that everything will be fine with their child. They want their child to graduate with a matriculation examination certificate, to have good grades in at school. If he is happy at school, that is, if he has no social problems or similar matters and has good grades, the parents are okay.*

Some teachers would like parents to be more active and more responsive, which usually does not happen. The learners, on their part, reflect on the technological infrastructure that sometimes allows too much transparency. One of the learners tells us that when he once left class in the middle of a lesson the teacher texted his parents; "a bummer", his mates say.

## 5. Conclusions and Implications

The ILE of Mevo`ot HaNegev promotes 21st century learning skills in various ways:

**Cognitive Learning** – the innovative environment introduces learners to integrative subjects relevant to their lives and also connected to life outside school. As they grapple with various new issues they amass much information that they need to integrate and reorganize, according to its quality and sources and its relevance to the guided questions they receive. Such proceedings interest the learners, engender curiosity and interest and prepare them to similar challenges in daily life. At the same time, in the context of the traditional educational system, the ILE presents certain difficulties: First, there is the difference in focusing and context between the subject matter learned for the matriculation exams and the integrative contents learned in Mevo`ot HaNegev. This difference creates difficulties in the higher division where learners study for the Matriculations, since it is the learners who want to focus and prepare for the exams even if the teachers would like to continue to develop the integrative directions. It would seem the general education policy of the State of Israel might be required to suggest a solution for this issue.

Second, developing the topics, the assessment methods and the performances of understanding impose a heavy burden on the teacher and requires profound expertise, such that is hard to keep ongoing for a long time; And finally, the integrative approach clashes with the teachers' qualification system which provides teaching licenses for specific knowledge areas, but not for integrative subjects. This approach is fortified by labor agreements that make it extremely hard to find and to develop professional teachers who would be capable of advancing such an innovative environment.

**Meta-cognitive learning** – the performances of understanding, cooperation, tasks and projects all, contribute to strengthening learners' meta-cognitive awareness and understanding. Learners evidence a wider and more flexible perception of the essence and contents of their learning subjects, they perceive themselves and their peers during the learning processes and learn to evaluate and develop themselves as learners.

***Social and emotional development*** – the close bond with peers and teachers and the additional communication layers enabled by the ICT infrastructure, together with the choice options and the listening to the needs of the individual create a favorable social atmosphere that supports learning. The learners love coming to school, they appreciate their teachers and are involved with the subjects being learned. All of these indicate a successful environment that induces a significant change in the relations between learners, teachers, and knowledge.



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