THE SCHOOL WEBSITE AS A VIRTUAL LEARNING ENVIRONMENT

Dr. Abrham Rotem, Ministry of education, Israel
He is a scientific consultant specializing in the integration of technology into education. He has established computerized systems for a wide range of educational bodies including the Ministry of Education.
avrumr@netvision.net.il

Dr. Anat Oster-Levinz , Beit-Berl Academic college
Dr. Anat Oster-Levinz is a lecturer and senior staff member of the Department of Computer Sciences Education at Beit Berl Academic College. She serves as an academic consultant in the development of websites and the integration of computers into education and teaching in regional centers for teacher training.
anato@beitberl.ac.il

ABSTRACT

Although school websites have existed on the Internet for over fifteen years, in practice the website is not integrated into the organizational-pedagogical system of the school.
Against the challenging background of the modern education system and the theoretical facets of realizing a learning environment, this paper will present an online learning environment from the school's organizational and pedagogical perspectives, and will expand on the rationale behind the school website, while describing its characteristics. The proposed website will be characterized by both virtual areas accessible to the general public and by areas restricted to the learning community of teachers and students. In addition, both virtual tools capable of integration into the diverse components comprising the site, and the recommended structure of the website will be presented. The site will fulfill the role of an online learning environment and will reflect schools' activities on various organizational and pedagogical levels.

INTRODUCTION

In recent years it has been acknowledged that the Internet has changed the direction, time, and location of learning (Moore, 1993; Nachmias et al., 1999). Moreover, the typical class is also no longer limited to four walls and set hours; the Internet facilitates learning from any location at any time and this significant transformation is gradually occurring in schools as well.

School websites have existed on the Internet for several years and many are recognized as Web-Based Learning (WBL) (Blanchard & Marshal, 2005). In practice, however, the website is not incorporated into the organizational-pedagogical system of most schools and is not an integral part of school procedures. Schools are still operated under the principles established by the academy of Pythagorus of Samos[1] and it is apparent that the assumption that technology would radically alter this situation has so far not been realized. Additionally, the attempt to formulate a rationale whereby utopian learning (ideal learning by ideal learners) is a prerequisite for integrating technology into education appears doomed to failure. Up to the present, twenty years after computers were introduced into classrooms and students' homes, no significant findings have emerged. Technology is still not sufficiently integrated into the learning environment of students in the modern school to allow researchers to establish whether its integration is crucial for reinforcing the quality of learning and the achievements of the education system. Even positive findings regarding the influence of the computer on learning achievements (Organisation for Economic Co-operation and Development [OECD], 2006) reveal that it is relatively minor.

As yet, no structured, unanimously agreed-upon rationale for integrating an online learning environment into schools has been defined. Such a rationale would set guidelines for determining feasible tools and models for constructing a high-quality system (Stimson, 1989). The best proof of this is the plethora of arguments over the importance of realizing utopian pedagogy in everything connected to utilizing technology in teaching and learning, the condition , in fact, for using the online environment. In practice, it is currently accepted that the realization of pedagogy through technology is actually an expression of the aspiration to achieve an overall improvement in the education system.

In order for the school website to play an essential part in school procedures, its place in teaching, learning, and the organizational operation of the school must be clarified and emphasized, and its structure and principal functions must be elaborated upon.

Necessity of the School Website as an Authentic Learning Environment for Learners

The necessity of integrating an authentic, comprehensive online environment into school to meet the needs of teaching and learning and to support its organizational management does not stem from the aspiration that the combination of utopian learning and technology will lead to higher achievements and standards. It is much more

prosaic, but also more powerful than any educational theory or hypothesis and pseudopedagogy of the PreNet generation paradigm. This paradigm, in essence flawed, maintains that the use of technology in education is feasible as long as it is conditional on achievements and high standards of learning. The learner is thereby transformed into a self-regulated learner, curious and inquiring, for whom learning is a natural process with no need for the guidance or encouragement of an instructor or a professional teacher because this can be attained independently through the Internet.

Unlike the PreNet generation paradigm, which has become a prominent conceptual obstacle to real change, the NetGen paradigm focuses on lifestyle and a worldview whose essence is alien, and even strange, to the previous generation. The virtual environment of the NetGen generation is an inseparable part of its lifestyle, as natural as oxygen to breathe, and in effect knowing no other reality (Brown, 2006). This generation does not need the benevolence of the school establishment to engage in fascinating collaboration that revives the rules of the collective thought by some to have vanished for ever (contribute according to your means and consume according to your needs). It effortlessly circumvents the legal obstacles erected by giant multimedia content corporations2. The NetGen learner is both participant and contributor, connecting diversely and instantaneously with a group of like-minded colleagues, some of whom he or she may never have met, in common fields of interest. Using a virtual environment is instrumental in shaping the personality and worldview of every young person. There is no need for the intervention of "educational" structures; personal and collective reflective interaction is combined in an empowering, nurturing virtual community whose strength is remarkable. The NetGen generation has no need of an official organization to satisfy its interpersonal and personal needs. It achieves this independently of an education system that is still mired in the PreNet paradigm. This paradigm defers to theories and impractical aspirations and persists in classifying routine activities – such as, participating in virtual discussions, retrieving information for personal needs, instant messaging, and sharing digital material – as innovative, and even revolutionary, learning. It continues to aim for control and supervision over everything related to the power of self-expression and to the interpersonal interaction the Internet offers young learners.
If we wish to encourage the NetGen generation into learning activity relevant to the learner, learning must be transferred to the learners' natural environment: the virtual environment; if not, school will become increasingly irrelevant, a fact that significant quantitative research has clearly indicated (Condition of Education, 2002). Also indicated was the large gap between accessibility to, and use of computers at home, and the relatively scarce use of them in schools (OECD, 2006).

School Website's Objective
The objective of a school website is to provide a pedagogical response to the school's requirements and to serve as an effective, organized online learning environment. In addition to the implementation of pedagogy in a virtual environment, the school website constitutes a virtual organizational mantle for managing administrative requirements. These requirements include establishing relationships with the local, regional and national education system, efficient organizational management of teaching staff, and maintaining contact with parents and the community.

Through the website, school will become a vital hub in the learner's life and thus its relevance to learners and society, following its gradual decline from the early 1980s up to the mid-twenty-first century (Condition of Education, 2002), will be restored and will increase. Concurrently, it is essential that the objectives of the school website be exempt from the stipulation of raising teaching standards and students' achievements. This challenge has no connection to the existence of a website or to a virtual learning environment.

Challenges of the Education System as a Theoretical Framework Characterizing the School Website
Characterizing the basic outlines of a school website as the realization of an online learning environment constituting part of the ongoing management of teachers and students compels a reconsideration of the basic challenges confronting modern education. The root of the societal vicissitudes society is undergoing in the postmodern era, including the educational context, relates to two conflicting trends that exist concurrently: uniformity and uniqueness.

Education's contemporary pedagogical challenge is to adapt and acclimatize itself to the educational challenges in modern society where both these contradictory trends are dominant and where each demand a concrete response:

a. Uniformity: the trend of transforming the world into a global village characterized by a low common denominator at the expense of the prosperity, initiative, and creativity that varies the local and global cultural arsenal through multifaceted opinions, cultures, and worldviews. In addition, uniformity demands that the

fulfillment of predetermined standards of information arsenal and skills (Programme for International Student Assessment [PISA], 2006) be maintained as an entrance requirement to the global village.

b. Uniqueness: guarantees a personal response to the profile of individual and group behavioral tendencies and capabilities. This trend preserves cultural and ethical individualism, including a theological and civil worldview, as part of the functioning of a multicultural society by permitting learners to express themselves and operate in a supportive, challenging environment.

It is the responsibility of the school website to provide an appropriate solution to both trends despite the apparent discrepancy between them.

Theoretical Aspects of a Virtual Learning Environment for Integration into the School Website
In characterizing the administrative environment of a school, two pivotal aspects must be discussed and unified into a virtual administrative entity:

a.   Organizational management
b.   Learning management

As yet, there is no significant theoretical validity for an online learning environment. The need for such an environment is still in its infancy and the practical experience accumulated is insufficient to facilitate the development of theories of any great consequence. However, it may be argued that in actual fact there is no need for such theories in a virtual environment because it is realized in the established and familiar environment of the school.

Organizational Perspective
In the information/ knowledge age the power, relative advantage, and output standard of organizations stems to a great extent from their ability to develop, maintain, and utilize specific information supporting the organization's learning processes. The doctrine of organizations illustrates that an organization that does not develop, change, and expand is doomed to failure and regression (Peters, 1997).

The term "learning organization" was coined by Peter Senge, who defines it as an organization constantly broadening its capacity to shape its future (Senge, 1990). De Vito defines a learning organization as the creation of a new language (cited in Craig, 1996). The organizational learning process facilitates the strengthening of implicit knowledge in an organization and its transformation into explicit knowledge. Business Intelligence (or Business Information) – BI^3 – is a sub-discipline of business discipline. BI is a business outlook amalgamating culture, business procedures, and supportive infrastructures for the rational utilization of information existing in the organization, and for the creation of new information. It aims to realize the organizational vision and business objectives of the organization effectively and efficiently (Halamish, 2004).

The education system is one of the largest and most complex organizations in the world. Despite its complexity and size, it is considered a conservative organization where twentieth-century thinking has not made any significant inroads (Chen, 1999). The same holds true for the school which, with a diminishing budget, must provide ongoing teaching and learning services while constantly dealing with parents, unions, and teaching staff; maintain achievements and standards; and fulfill its obligations to every student.

The virtual organizational perspective has different rationales based primarily on the need of the giant software corporations, which have developed online management tools, to justify and to develop for themselves a convincing, detailed rationale (Microsoft White Paper, 2005; Omilian, 2003). Many specialize in specific software or computer applications. The organization's success is dependent on the metamorphosis of the entire system into a learning organization capable of planning, operating, and drawing the appropriate conclusions (Chen, 1999). A study conducted over a period of two years in Texas reveals that the use of virtual organizational management tools in the school organization led to a fundamental re-organization of the system (Fourqurean, 2001). These and other outcomes demonstrate that schools must become "learning organizations" capable of drawing the appropriate conclusions from the processes of change and of incorporating the lessons learned into the entire system; it reveals that the most effective way of actively achieving this is in a virtual environment.

The marketing perspective, crucial for the survival and prestige of the school, is also an important facet of the school website. A customized school website has the potential to be a powerful marketing tool if it focuses on the needs of the users and presents the materials correctly and methodically (Say et al., 2001).

Pedagogical Perspective
The pedagogical perspectives of an online learning environment are critical for the characterization and understanding of pedagogical realization through such an environment. It should be borne in mind that a virtual

learning environment is primarily the learning environment related to in the literature (Blanchard & Marshal, 2005). The challenge lies in establishing and adapting these theories to the rationale of a virtual learning environment. Accordingly, every discussion on the subject must begin with the adoption of a paradigm to characterize a virtual learning environment. Therefore, discussion must revolve around two fundamental, key approaches characterizing teaching and learning from which to select a central pedagogical paradigm:

1) The behavioristic approach to learning is concerned with acquiring instinctive command of skills. It supports an environment where the practice and the clear, didactic explanations of every detail constitute the main characteristic. This approach is typical of the inflexible, dogmatic education system that distinguished conservative education in the past.
2) The cognitive approach to learning deals with the acquisition of an understanding of conceptual content and relates to the learner as a unique individual in a learning community. These are the pedagogical theories of Ausubel (1963, 1978), Gagne (cited in Perry, 2002), and Bruner (1996). In this context, Ausubel coined the term "advance organizer" (1963: 81) where, prior to a lesson, learners were introduced to the general context that assisted them to absorb the lesson's constituents in a wider schema.

   The cognitive approach is concerned with the phase of learning whereby the information transferred to the learner is transformed into knowledge and personal insight that is integrated into his or her existing knowledge (Rotem & Peled, 2006). These methods attempt to illuminate the "black box," those internal, cognitive, and emotional processes that occur between the phase of introducing information to someone and the subsequent outcome. They focus on processes, avoided by behaviorists, that are unpredictable and which cannot be directly mediated.

   Since 1980 educational research has to a large extent been engaged in both identifying factors that offer a significant contribution to learning and in characterizing a learning environment. On this basis Silberstein has established a model describing the characteristics of a learning environment (Silberstein & Berkowitz, 1994) whose principles are flexibility and compatibility, encouragement of choice, assistance, development of self-evaluation, democratic conduct, encouragement of internal motivation, open learning, taking advantage of information gleaned from outside sources, cooperation, encouragement of both independent thinking and assertiveness, presentation, and reasoning. Other researchers propose an ideal environment for learning oriented toward understanding as part of a computerized environment (Winn & Snyder, 1996). The Internet offers learners new learning techniques beneficial to both cognitive and interpersonal levels, and that lead to increased internal motivation and enhanced satisfaction from learning processes (Acker, 1995; Levin, 1995).

Added Value of Learning in a Virtual Environment to Facilitate Characterization of a School Website
Several studies have indicated the high potential of a virtual environment for learning and for the user's enrichment outside the classroom (Parsad, 2005). According to Winn and Snyder (1996), the characterization of computerized learning and the analysis of the learning environment's attributes referred to by Silberstein et al. (1994) are realized in a virtual learning environment.
Based on this hypothesis, six prominent facets, which are amplified in a virtual environment in comparison to other learning environments, may be highlighted:

(1) Availability of choice, both on the personal level of every learner and also as the heterogeneous response of a learning group.
(2) An ongoing, intimate dialogue between learner and teacher.
(3) Availability of unrestricted learning conditions
(4) Availability of maximum accessibility to information sources and up-to-date information.
(5) Availability of high-standard collaborative learning.
(6) Encouragement of independent work; diversified, critical thinking; and personal research.

These six facets comprise the cornerstones characterizing an online learning environment and its operation. How these characteristics are expressed in the learning process, which technology is liable to enhance, together with other extant pedagogical characteristics, are dependent solely on the teacher activating and guiding the learning. These characteristics are meant to be the guideline in every facet of a virtual learning environment, especially the school website.

Basic Assumptions in the Characterization of the School Website Derived from the Theoretical Framework of the Challenges of Education and the Integration of a Learning Environment
Based on the theoretical framework and the added value focus of learning in a virtual learning environment, as well as on the practical-pedagogical experience in managing school websites amassed by the authors of this

paper since 1995, a rationale to characterize, establish, and operate a school website founded on nine basic principles is recommended:

I. *Learning and organizational management services*. The school website is designated to provide services to operate an online teaching and learning environment and acts as a virtual organizational management environment.

II. *Restoring the relevance of school to the learner and society*. A basic principle for the authentic use of a school website is founded on the acknowledgement that a major factor in restoring relevance to school in the eyes of the learner and society is the integration of school management by means of a virtual environment encompassing every team of learners, teachers, and management.

III. *Collaborative learning in a school cluster*. The school website does not operate in a vacuum and is not established or managed by any one school, but rather as part of a cluster of schools (local or regional) utilizing the same platform. The principal factor stems from the acknowledgement of the need to learn in structured collaboration, which is an important part of high-quality learning that utilizes a virtual learning environment. The school cluster offers more diverse collaborative learning opportunities than a single school. Collaborative learning's contribution to the quality of learning was recognized in the pre-computer era by Miller and Dollard (1941). In their wake other researchers such as, Vygotsky (1978), Bandura's Social Learning Theory (1977), and Wenger and Lave's theory of situated learning (1990) expounded on the theory of the development of the learner from a societal and personal perspective. Openness: accessibility to all. The school's activity is reflected in an open section of the school website that is accessible to the general public. This has no connection with virtual personal areas that facilitate the management of a group of learners and pre-designated authorized personnel for efficient management of learning.

IV. *Uniformity*. Standards and rules of presentation must be adhered to, together with explicit, clear online management of each page and area of the school website to ensure structured and user-friendly uniformity for proper and simple usage. This will also make it easier for learning groups, parents, and teachers from other schools to participate in virtual activities.

V. *Uniqueness*. As well as maintaining uniformity, each school, teacher, and student must be able to express their uniqueness. Teachers' readiness to use a virtual environment will be greater the more autonomy they have over managing learning, designing learning environments, and making decisions on the presentation and organization of material. We found that a site managed under strict supervision and criticism of the quality of materials, the standard of teaching and how learning and teaching is implemented cannot function properly, and certainly does not reflect the school's authentic activity. The school website therefore misses its target, becomes a burden, does not provide a service, and does not lead to more efficient school management. This autonomy is also important with respect to the personal choice of the learning model according to personal or group context; it is on no account dictated by the school or by pedagogical consultants both within and outside the school.

VI. *Virtual personal area*. To facilitate efficient learning management, every user – management staff, teachers, and learners – have their own virtual personal area that operates autonomously according to their choice. It serves as a virtual locker, accessible from any computer via the Internet. The virtual locker saves learning and other materials according to personal choice. Simultaneously, the area is a site of personal and group learning management. This is all achieved with full autonomy for teacher and learner according to their choice as a response to the principle of uniformity.

VII. *Virtual area for management and teaching staff*. This area replaces lockers in teachers' lounges and the incessant correspondence between teachers and management, with students, and with parents. It serves as a forum for registration, reports, and regional and national exams, and as a liaison with educational institutions to whom the school is answerable such as, the local Department of Education, regional and national administration, and regional and national professional, pedagogical supervisory bodies.

VIII. *Resources center*. A resources center, which constitutes the management of pedagogical information accumulated in school over the years, is operated through the website.

Rationale of the School Website Structure

As in every virtual environment whose role is to integrate into the management of an organization, the organization's rationale must be defined and from this its pedagogical-organizational characteristics are derived (Oster & Rotem, 2006). It therefore follows that the structure of a school website will be described as a derivative of the school's pedagogical-organizational rationale.

The structure of school activity will be related to without elaborating upon the complicated definitions of the school's role and, through the school, the realization of education's role overall (Rotem & Peled, 2006):

1. The lesson is the smallest component of learning activity in school as far as its management is concerned. In a lesson, a learning group is activated in order to learn a particular content unit. It also achieves results through the utilization of advanced technologies of editing, production, broadcasting, and distribution and publication on the Internet.
2. A whole complex of lessons, including single lessons, comprises the topic or subject. The topic or subject is characterized by specific learning material that stands alone and is taught over a number of lessons throughout the semester.
3. A learning group may be a class, age level, or specific orientation learning groups concentrate on several topics or subjects that are taught in small lesson units.
4. The lesson, topic/subject, and class are part of the pedagogical-organizational framework of the school website.

These four components, three of which are basic components encompassing the pedagogical-organizational structure of the website, comprise the discernible foundations of a virtual learning environment. Subordinate to these are other indiscernible components fundamental to the understanding and construction of online learning tasks (the equivalent of lessons in the physical school environment), which constitute the core of actual learning. This refers to a learning object or small learning unit concerned with a narrow topic where the duration of learning is no more than one lesson, and usually only a small part of that lesson (Hodgins, 2000; Urdan & Weggen, 2000; Gibbons, Nelson & Richards, 2000). All this is conveyed on the Internet by rich, diverse digital text via a multitude of the most advanced processes from a simple webpage, word processing file, or PowerPoint presentation to an educational weblog, Vodcast, or Podcast, and even collaborative state-of-the-art products, such as Wiki and other web tools that influence teaching and learning in class (Richardson, 2006).

Accessibility of the School Website to the User
The website is organized on three levels that are accessible to the user through the following virtual areas:
I. Open to the general public and reflecting the school's marketing perspective.
II. Open only to learning groups according to the social and learning context and reflecting how learning is managed.
III. Personal areas for the learner and teacher through which they maintain direct contact with one another, with learning groups or with other activities.

The reflection and expression of school activity is expressed in the composition detailed hereunder:
(1) Lessons in practice: virtual learning tasks; the website supplements the lesson as part of the learning management of the teacher allocated to the learning groups. In addition, it supplements learning products that indirectly serve teaching such as, educational weblogs and other state-of-the-art technology.
(2) Online area of a "topic": contains all the relevant information and activity.
(3) Online area of a "subject": contains all the relevant information and activity.
(4) Virtual classroom: the pedagogical-organizational management of the classroom as a virtual environment that constitutes a "home" for the learner where authentic interaction, learning, and socializing is conducted through the Internet.
(5) Personal work area for the student and teacher: manages learning. Some of the learning management is conducted in the personal area accessible to authorized personnel only.
(6) General virtual mantle of the school: contains, in addition to the five abovementioned elements, components related to the school itself such as, social and cultural activities and general information about the school.

Online Web Tools: A Service for School Website Designers
A virtual environment, such as the school website where learning groups and individuals are managed, will include online web tools intended for designers of any kind of virtual environment. The designer will integrate certain online tools according to requirements. A modular attitude toward online tools is essential to ensure the management and construction of a dynamic website. This may be achieved through a system whereby objects are integrated and connected by local and immediate context from any location with no need to "reinvent" the tool. An example would be the integration of an online bulletin board, events board, or online discussion group into the subject/topic site or a class site constructed by the teacher.
The contents of a school website's virtual toolbox include:

- Bulletin board
- Events board
- Class Timetable
- Online interaction tools: virtual discussion, online "blackboard and chalk" (tools for managing a synchronous distance lesson), and educational weblogs (Davis, 2003).

- Various online learning aids such as, "virtual lockers", exam generators, and online surveys.
- Information retrieval tools from school cluster, school, class, or other school learning groups.

The above tools will be integrated according to the needs of the website designer or the persons responsible for the virtual area in question; for example, integrating learning task such as a virtual discussion into an online learning task, class timetable, or subject bulletin board. Such an organization of online tools will prevent their decentralization as there is no justification for situating them in a single location. It is therefore possible, for instance, to integrate a survey as part of a concrete virtual learning activity rather than classifying it under the category of "surveys." Likewise, discussion groups may be integrated into a specific topic rather than a "forum" listing the discussion groups active on the website; similarly, the bulletin board may be assigned to a class or a learning group and not merely classified under "announcements."

The integration of an online web tool in the most appropriate location transforms it into a powerful force for tangible, focused pedagogy. In this event, care must be taken to ensure that the virtual toolbox, from which the tools deemed appropriate are chosen and embedded in the appropriate location and context, is made available to those responsible for the online areas of the school website such as teachers and subject coordinators.

Table 1: Online Tools Available to School Websites

Online Web Tool	Description	Use
Bulletin Board	The bulletin board will appear as a list of titles; clicking on a title will display the message content. The message content appears as digital text including photographs or animation. The titles are either static or move horizontally or vertically.	School board (e.g., on the general homepage). Class or learning group bulletin board, or concrete activity. Topic or subject area bulletin board. Bulletin board for specific fields such as projects or holidays.
Events Board	Monthly/annual board with each date indicating an event.	School events board (e.g., on the school homepage). Class or learning group events board, or concrete activity. Subject area events board. Class or age level examinations board.
Virtual Interaction	Virtual discussion	Integration into any nominated place in the school website for a designated activity. Entering all the discussions as one section is not recommended.
	Exchange of instant messages	Instant communication with parents (to cellular phones for instance); communication with students (grades, schedule changes, important announcements that must be conveyed immediately); sending photographs and lists by direct cellular link or other means to the school website; exchange of photographs and video clips between students through state-of-the-art technology.
	Online "blackboard and chalk"	Web-based lesson: an online group lesson that is usually a combination of diverse video and digital text. The lesson is conducted synchronously – in real time – thus facilitating students' questions and immediate feedback from the online teacher. Exchange of a repeat "playing" of a lesson either already conducted or pre-recorded for this express purpose, including methods such as Podcast and Vodcast.
	Educational weblog / virtual notebook	Management of unrestricted or moderated weblog and/or virtual notebook with rich digital text. The notebook is written so that the writer can save sections according to choice for his or her personal requirements that are either accessible to the teacher or to the learning group only, or to all. Likewise, the writer may permit the feedback of

		other participants in the notebook (the teacher or other learners).
	Distance learning	Structured lessons pre-prepared in an organized course similar to the instruction of the teacher and/or the online "blackboard and chalk" that constitute a course or a defined topic and serve as a supplement to the class curriculum in addition to an external school supplier as enrichment or an external increment.
	Miscellaneous	Video conference and responses to content broadcast by Podcast, Vodcast and other similar products.

It is apparent from the virtual (online and asynchronous) tools detailed in Table 1 that integration of different online interaction processes occurs in school. Despite the overriding significance of interaction in every learning process, in online lessons and assignments, its expression on the school website requires reconsideration. In general, most interaction in learning activity is expressed in the virtual discussions that have so far been explored by many researchers and which, since 2005, have been part of an educational weblog comprised of editing and updates casting tools. Hereunder are a few basic rules for the integration of interaction tools in the school website to achieve significant objectives such as learning management:

(1) Integration into a website in a location where the activity takes place: virtual tools related to a topic of activity will be integrated into the area where activity is occurring rather than in one specific area. For instance, instead of constructing a "forum" category, the forum will be integrated into the area where a discussion is being conducted; instead of constructing a "web-based lessons" category, every lesson will be held in the appropriate location: a subject or topic site.
(2) Pre-planned use: an interactive tool integrated specifically for activity in a pre-planned topic. Termination of use will occur on completion of the activity.
(3) Managing through a "tool manager": the tool will be integrated only when it is defined as a "tool manager." For example, integrating a virtual discussion into a learning task will occur when a member of the teaching staff is designated a "discussion manager." The "tool manager" will constitute the authoritative body for editing and deletion. Likewise, it will possess the required capabilities such as the ability to convey and guide virtual discussion. In certain contexts, in the event that a student is permitted to use the tool, it must be ensured that a member of the teaching staff has overall responsibility.

Planning a School Website
In planning a school website, its three areas of activity will be elaborated upon: general school area (Table 2), pedagogical area (Table 3), and community-society area (Table 4).

Table 2: General School Website Area

Item	Description
Homepage	The homepage constitutes the site map and includes the institution's logo; information retrieval (from the resources center described hereunder); "contact us"; entry of authorized persons automatically logged in to the site's online areas accessible only to authorized personnel; important messages posted on the school cluster site (to whom the school or the regional authority under discussion is subordinate); the general bulletin board, timetable, and central events board. The most important links to the sub-site areas referred to above: subject and class areas, and major areas that must be displayed prominently such as the library. Additionally, according to the individual needs of every school, there will be referrals to central areas of activity such as an online newspaper and virtual broadcasting that are of great importance to most learners and/or instructors and for the school's public relations.
About the school	"About" (the school) is a crucial part of every school website. It is accessible to all and includes the school's details: history, guiding principles and policies, management and teaching staff; orientation and subjects (specific reference to the site areas that describe the various orientations and subjects); registration and contact information; and directions (such as, maps and public transport to the school).
Society and culture	Expressions of the social-cultural operation of the school: holidays, ceremonies, projects, reports on liaison, activities with other institutions, a section for school graduates, and a memorial notice.

Table 3: Pedagogical School Website Area

Item	Description
Class site (unrestricted)	Each classroom has an unrestricted area under the responsibility of the teacher in his or her role as a sub-site manager. This is where class activity is presented, the annual curriculum (referral to subject area), teaching staff, and learning groups; class announcements of events and organizational information; timetable; events board; photograph album; online toolbox available to the learners (such as, dictionaries, encyclopedias, and atlases); special sections (recommended reading, special events, invitations to events, or obituaries); online discussion.
Class site (restricted)	Restricted to authorized personnel in every learning group.
Subject site (unrestricted)	Presentation of class subject, annual curriculum, and general enrichment sources related to the subject, learning requirements, subject teachers, subject-related pedagogical activities, bulletin board, and virtual discussion.
Subject site (restricted)	Accessible only to the learning groups and designated for teaching including learning materials, announcements, enrichment materials, exam preparation, and learning tasks.
Teacher's personal area (restricted)	Each teacher has a personal area for the management of materials in virtual lockers and for communication with other teachers and school management. Online tools integrated into this area include online learning task generators, virtual discussions or surveys (accessible to pre-selected learning groups), and the implementation of managing follow-up procedures after the assignment of learning tasks, including instructions to students and grading.
Resources center (unrestricted)	The school's organizational and pedagogical information is stored in the school's resources center as a small-scale digital school library.

Table 4: Community-Social School Website Area

Item	Description
Students (unrestricted)	Accessible to students. This area includes expression of the students' activities in school: students' council, students' newspaper, announcements oriented toward students on activities or other information, and discussion groups under the supervision of a member of the teaching staff.
Virtual locker – students' personal area (restricted)	The students have their own personal, private virtual area where learning and other materials are stored. They manage their learning in conjunction with the teacher – receiving and sending learning tasks, private mailbox, and accessibility to all the learning groups they participate in. In advanced platforms it is also possible to design a personal website with the option of making it available (either entirely or partially) to the class or to the general public.
Parents	A virtual area where parents may express their involvement in school activities. This area may be either unrestricted where parents' specific activities are presented or restricted only to the school council. Based on the experience of the authors of this paper, the participation of parents in school activities via the school website constitutes a factor motivating participation and makes a positive contribution to the school. In unrestricted class sites, parents are kept informed of the students' weekly and daily curriculum and payments due.
Graduates (unrestricted)	School graduates play an important role in the school and an online environment encourages their involvement. An active graduates' club is likely to yield benefits, both in monetary terms and in human resources (advising students in further education, offering expertise in different disciplines). An active graduates club is expressed in the site through announcements and information, organization of conferences, memorial notices, and biographies of prominent graduates.

Resources Center as a Digital School Library
The resources center constitutes a focal part of the school site where the organizational, pedagogical information of the school is digitally concentrated, stored, and preserved. It constitutes, in effect, the organizational-pedagogical memory of the school from its establishment. The ideal resources center is managed, supervised, and maintained by the school librarian or a member of the teaching staff possessing the appropriate skills. The activity output is that of a small-scale digital school library linked to similar libraries in other schools that together constitute a database of learning activity and descriptions of learning and social activities. Cataloging and classifying the materials is effected through official, professional meta-data. The online resources center is divided into two main parts:

1. Local resources center serving the school only.
2. Resources center serving the school cluster sites that are also linked to other similar resource centers and constitute a customized, digital school library.

The teachers, who usually write the material, are responsible for posting material on the website at their discretion. Material is only posted after all the details have been entered into a special digital form containing the required meta-data.

Quality control and the correct classification of material is vital for the maintenance of a dynamic, professional resources center, a center capable of meeting the needs of both learners and teachers. Accordingly, there exists a system of confirmation of publication for new material published online after inspection. However, in order to attain the full cooperation of teachers responsible for entering data into the database, caution should be exercised against rigid, over-supervision in everything related to the quality of materials.

Retrieval of information will also be implemented according to the name of the school in addition to the meta-data according to which the material is classified.

Presentation and Operation of a Virtual Environment via the School Site
With respect to the presentation of a virtual environment, the decision over "how to present what" is acquired from an analysis of the potential site user. It must relate to the habits, abilities, perceptions, and behavioral characteristics of the intended user. In order to achieve this, it must be examined from the perspective of the inclination and understanding of the average user. The organization of the student's personal online area, for example, must reflect the practices, understanding, and conduct of the average student for the designated age group. There is no pedagogical behavioral justification for a childish design because "this is what the child understands," or for flawed assumptions concerning the standard of the learning process and the abilities of the learner such as, "the student doesn't like to read/write….he/she needs only visual/dynamic information."

The golden rule that should guide site designers is to visualize the site's user in their mind's eye. Site designers tend to characterize online information services from the perspective of the information and service supplier. This inclination should be suppressed, and the perspective of the average user taken into consideration in order to provide a more convenient and accessible online service. To facilitate this, the nature of the presentation must be decided upon once the behavioral-cultural profile of the intended user has been understood. Attention should be paid to convenience, transparency, accessibility, and clarity of information for the user, even at the expense of abandoning "modern" graphics and a complex, effective (from the site designer's perspective) presentation. Although the outcome may be a more cumbersome presentation, it will also produce a clearer and more familiar environment, even if less sophisticated and "modern."

A school website is not a high-tech company site; it does not sell products and is not an arena of games and excitement for computer-addicted teenagers. There is no need to attempt to duplicate and reproduce design principles that have neither a direct link to the target audience of the school website, its aims, the emotional and behavioral character of its users, the role it is assigned, nor to learning how to use and take advantage of its online services.

The justification of an online environment is primarily to provide the target audience with a designated service that has been meticulously pre-planned; it is not intended to be educational in the sense that it causes a change of general perception that is indirectly related to the functional requirements of using the site. It may be that part of the pedagogical objective is improved and enhanced usage for learning-personal needs in an online environment. This is achieved by the mediation of the teacher through learning tasks conveyed through the environment to the learners. However, it must not be assumed that this will automatically occur and no attempt should be made to

induce it; rather than an educational factor molding and transforming, the sole purpose of the school website is to provide a service.

CONCLUSION

The objective of the school website is to provide a pedagogical response to the needs of the school and to constitute an efficient, organized, online learning environment. This paper presents the characteristics of an online learning environment from the organizational-marketing and pedagogical perspectives of the school and proposes a rationale for the school website founded on several basic principles: providing learning management and organizational services to the school; restoring schools' relevancy to the learner and to society; making the site accessible to all; maintaining consistency and providing explicit, clear online management of all web pages; meeting the special needs of each school, teacher, and student; providing an automatic personal virtual area for every learner and management and teaching staff user; providing a virtual area for management and staff as an alternative to lockers in teachers' lounges and the incessant correspondence that is a feature of schools; and a resources center to manage the school's accumulated pedagogical information.

The recommended site is organized into three levels: an online area accessible to the general public, restricted areas accessible to learning groups to facilitate learning, and personal work areas for teachers and students. Available to the site designers is a virtual toolbox whose tools may be integrated into every area; the tools include a bulletin board; an events board; a timetable; tools facilitating online interaction; various online learning aids, such as exam generators; and tools for information retrieval from the Internet.

REFERENCES

Acker, S. R. (1995) Space, collaboration and the credible city: Academic work in the virtual university. *Journal of Computer-Mediated Communication*. http://www.ascusc.org/jcmc/vol1/issue1/acker/ACKTEXT.HTM.

Ausubel, D. (1963) *The Psychology of Meaningful Verbal Learning*. Grune & Stratton, New York.

Ausubel, D., Novak, J. and Hanesian, H. (1978) *Educational Psychology: A Cognitive View*. (2nd ed.). Holt, Rinehart & Winston, New York.

Bandura, A. (1977) *Social Learning Theory*. General Learning Press, New York.

Bandura, A. and Walters, R. (1963) *Social Learning and Personality Development*. Holt, Rinehart & Winston, New York.

Blanchard, J. and Marshall, J. (2005) *Web-Based Learning In K-12 Classrooms*. Haworth Press, New York.

Brown, J. S. (2006) *Digital Culture and Learning in the Digital Age*. http://www.johnseelybrown.com/speeches.html#digitalage. [viewed 21 August 2006].

Bruner, J. (1966) *Toward a Theory of Instruction*. Harvard University Press, Cambridge, MA.

Chen, D. (1999) *The School of the Future, Between Theory and Practice*. Ramot, Tel Aviv.

Craig, R. L., ed. (1996) *The ASTD Training and Development Handbook: A Guide to Human Resource Development*. (4th ed.). McGraw-Hill, New York.

Davis, A. (2003) *EduBlog*. Georgia State University. http://anne.teachesme.com/. [viewed 21 August 2006].

Fourqurean, J. M. (2001) Changing school attendance boundaries: Role of the district web site. *School Business Affairs*, **67** (5) 41-43.

Gibbons, A. S., Nelson, J. and Richards, R. (2000) The nature and origin of instructional objects. In *The Instructional Use of Learning Objects: Online Version*, D. A. Wiley (ed.). http://reusability.org/read/chapters/gibbons.doc. [viewed 21 August 2006].

Halamish, Y. (2004) *Managing Knowledge: What is It? Observation of Management Organizations and Knowledge*. http://www.notes.co.il/yigal/4851.asp [in Hebrew]. [viewed 21 August 2006].

Hodgins, W. H. (2000) *Into the future*. http://www.learnativity.com/download/MP7.PDF. [viewed 21 August 2006].

Lave, J. and Wenger, E. (1990) *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press, Cambridge, UK.

Levin, T. (1995) Curricula in the age of technology. In *Education for the 21st Century*, D. Chen (ed.), Tel-Aviv University, Tel-Aviv, pp. 73-83 [in Hebrew].

Microsoft Office System Business Value White Paper (2005) Differentiating the business value of Microsoft Office SharePoint Portal Server 2003 and Windows SharePoint Services (April 2005).

Miller, N. and Dollard, J. (1941) *Social Learning and Imitation*. Yale University Press, New Haven, NJ.

Moore, M. G. (1993) Theory of transactional distance. In *Theoretical Principles of Distance Education*, D. Keegan (ed.), Routledge, London, New York, pp. 22-38.

Nachmias R., Mioduser, D. and Shemla, A. (1999) Internet usage by students in an Israeli high school. Tel-Aviv University, School of Education, School and Technology Education Center, Knowledge Technology Laboratory. Research Report No. 59.

National Center for Education Statistics (2002) Condition of education indicator 18. U.S. Department of Education. Office of Educational Research and Improvement. http://nces.ed.gov/pubs2002/2002011.pdf . [viewed 21 August 2006].

OECD (2006) Are students ready for a technology-rich world? Organisation for Economic Cooperation and Development, Paris (24 January). http://www.pisa.oecd.org/dataoecd/28/4/35995145.pdf. [viewed 21 August 2006].

Omilian M., et al. (2003) Process Goldmine: Microsoft Office System integrated solutions deliver business value. Microsoft (September 2003).

Oster, A. and Rotem, A. (forthcoming) Characterization of an online environment for managing centers for the development of teaching staff. *Initiative Papers*, Mofet Institute, Tel Aviv [in Hebrew].

Parsad, B., Jones, J. and Greene, B. (2005) Internet access in U.S. public schools and classrooms: 1994-2003. US Department of Education, Washington.

Perry, D. (2002) *Gagne's Instructional Design Theory*. http://education.indiana.edu/~p540/webcourse/gagne.html. [viewed 21 August 2006].

Peters, T. (1997) *The Circle of Innovation*. Alfred A. Knopf Publishing, New York.

PISA (2006) OECD programme for international student assessment. http://www.pisa.oecd.org. [viewed 21 August 2006].

Richardson, W. (2006) *Blogs, Wikis, Podcasts, and Other Powerful Web Tools for Classrooms*. Corwin Press, California.

Rotem, A. and Peled, Y. (2006) *Toward an Online School*. Mofet Institute, Tel-Aviv [in Hebrew].

Say, M. W., Collier, K. J. and Hoya, C. G. (2001) Your school's web site–a powerful tool for marketing. *School Business Affairs*, **67** (5) 32-34.

Senge, P. M. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organization*. Doubleday, New York.

Silberstein, M., Berkovitz, A., Ginat, K., Emanuel, D., Keret, Y. and Shulman, A. (2001) *The Development of the Self-Regulated Learner: Pedagogy of Literature*. Mofet Institute, Tel Aviv [in Hebrew].

Silberstein, M., Eyal, T. and Berkovitz, A. (1994) Recommendations for the application of a staff report to consider the development of the self-regulated learner in further education programs in elementary schools. Tel Aviv University, School of Education, Department for Curriculum and Instruction in collaboration with the Ministry of Education and Culture, Elementary School Education Department (July) [in Hebrew].

Stimson, R. A. (1989) *Total Quality Management. A Guide for Implementation*. U.S. Department of Commerce – NTIS, Springfield, Virginia.

Urdan, T. A. and Weggen, C. C. (2000) *Corporate e-learning: Exploring a new frontier*. http://www.spectrainteractive.com/pdfs/CorporateELearingHamrecht.pdf [viewed 21 August 2006].

Vygotsky, L. S. (1978) Interaction between development and learning. In *Mind in Society: The Development of Higher Psychological Processes*, M. Cole et al. (eds.), Harvard University Press, Cambridge, MA, pp. 57-91.

Vygotsky, L. S. (1981) *The Genesis of Higher Mental Functions*. Harvard University Press, Cambridge, MA.

Winn, W. and Snyder, D. (1996) Cognitive perspectives in psychology. In *Handbook of Research for Educational Communications and Technology*, D. H. Jonassen (ed.), Simon and Schuster Macmillan, New York, pp. 115-122.

Affiliation of Author

1. Pythagorus of Samos (*c*.569-475 BC).

2. Laws such as the Digital Millennium Copyright Act (DMCA) restricting free accessibility to Internet entertainment. The law was passed in the United States in 1997; in the ensuing years many rulings have been made against open cooperation on the Internet and legal obstructions whose purpose is to terminate the cooperation are increasing, a phenomenon that is alien to those raised on the PreNet paradigm of enlightened capitalism and neo-capitalism.

3. There is a certain amount of logic to the claim that a firm distinction should be made between BI and Knowledge Management (KM). While BI is practicable and important, KM is unrealistic because it relates to the personal knowledge of every employee in an organization. This personal knowledge may only be managed if the employee transforms it into public information through publication.