

Ofra Nir-Gal

Distance Learning: The Role of the Teacher in a Virtual Learning Environment

Descriptors: distance learning, computer-mediated learning, teacher role, learning characteristics.

Abstract

Distance learning involves a high level of interaction between teacher and student, interaction that is essential if the learning process in a virtual environment is to be successful. The research focuses on intervention – guidance and moderation – as a core characteristic of the teacher’s role in distance learning – a need evidenced when students enrolled in an online course were questioned and their online correspondence examined. The study population encompassed 35 students enrolled in a distance learning course at Achva Academic College. The study sought to reveal the role of the teacher in online learning in terms of guidance and moderation, beyond the “structured guidance” tied to the curriculum. The findings were based on the guidance needs perceived and sought by the students who constituted the subject of the study. Four domains where guidance was needed and two frameworks in which guidance was in fact provided became evident following qualitative and quantitative analysis of three sources: feedback from two e-mail questionnaires; summary reports on interviews with students conducted by peers enrolled in the same course; and the content of discussion in e-mail exchanges between the course instructor, the students, and the course’s online technical assistance forum during the course.

The data revealed that students in online courses expect guidance in four domains: the technical-operational domain, the task-oriented (i.e. assignment) domain, the personal-emotional domain, and the social domain. Moreover, it was found that within distant learning course where face-to-face meetings are absent, the need for guidance with “personal-emotional significance” is amplified. The study revealed that the guidance and personal ties that students sought and expect to receive were met not only in the framework of teacher-student interactions, but also by means

of spontaneous peer guidance and support within the course's technical assistance forum. Support for three possible guidance frameworks were examined in a special questionnaire: guidance in a virtual framework; guidance in face-to-face meetings; and guidance that combines the two modes. The combined mode that would allow some face-to-face meeting enjoyed the support of the majority – 56%, indicating that even in distance learning, students apparently still seek “a personal touch.”

The overall data derived from the research led to the conclusion that distance learning in a computer-moderated environment requires a different kind of deployment in terms of the teacher's role – one that takes into account the learning needs of students in a “online course.”

Introduction

A virtual learning environment allows learners and those engaged in education and teaching to free themselves from the limitations of time and space, and carry out learning interactions in a flexible timeframe and at “virtual sites” that are not physically tied to one another. Computer technology has made people and information sources of information universally “accessible” and “available” at any place and at any time. The development of information and communication technologies – including the Internet – and their introduction into the school system afford a host of distance learning activities. These include the integration of numerous information sources; simulation of experiences; team work and collaborative learning free of the confines of geographical distance; an open dialogue among learners, including debate, discussion and exchange of views and ideas; and a worldwide network for dissemination of knowledge, exchange of ideas and collaboration. Likewise, through computer communications technology, the typical classroom is no longer confined to four walls and a “sage on the stage,” but is open to students and experts around the world.

The professional literature makes a distinction between two primary channels for utilizing communication options provided by the Internet and online learning: synchronous and asynchronous learning (Beaudin, 1999). In synchronous learning, as in traditional teaching, the teacher and the students are “present” in lessons at the same time, although not necessarily in the same geographic location. Communications technologies that permit interactive synchronous learning include a host of communication channels such as chat rooms, videoconferencing, telephone conference calls and more. In asynchronous learning, technology links the students and the teacher without the need for everyone to be present simultaneously in order to participate in a given lesson. The technologies that permit asynchronic

but not interactive learning include e-mail, bulletin boards, forums, and various discussion groups (list serves), etc.

In recent years, parallel to the rapid development of Internet technologies, special educational technologies that support distant learning have been developed. The literature discusses computer-mediated vehicles that serve as platforms for gathering, exchanging and disseminating information around the world and the utility and application of such technologies in distant learning.

According to Thompson and McGrath (1999), the most influential factor impacting on student satisfaction with online courses is the flexibility of accessibility they offer. In other words, the technological vehicles that allow handy access to sources of course information, learning resources, teachers, moderators, and other students enrolled in the course, as well as help and support services, impact on level of satisfaction among students enrolled in online courses and their “sense of belonging” to the body operating such courses. Schwarz, Brusilovsky, and Weber (1996) present the concept of the “intelligent textbook” as a platform upon which one can base distance learning. The researchers argue that the intellectual guidance provided by such textbooks enhances problem-solving processes, structuring of knowledge, and interaction among learners, and accommodate different individual learning styles effectively. Their point of departure is that technological vehicles built upon the “textbook” platform can, like a flesh-and-blood teacher in the classroom, support students both in classroom learning and distance learning settings. Although distance learning techniques are numerous and diverse, the overwhelming majority are still in the preliminary experimental and evaluation stages.

Characteristics of the Student in a Virtual Learning Environment

Despite the crucial role of the technology in distance learning, the success of all such programs necessitates focusing on the learning needs of the students themselves (Sherry, 1995) – that they be tailored to the learner’s age, culture, socioeconomic background, personal interests, experience, and level of education. It is of cardinal importance that in designing such distance learning courses, the present level of mastery of the technological tools among potential participants and the ease with which one can expect them to acquire and apply such tools be taken into account.

The body of educational research on distance learning has already noted that student-centered learning – a classic learning environment where the focus is transferred from the teacher to the learner – particularly lends itself

to activating learners in a hi-tech environment and distance learning (Harmon & Hiram, 1996; Wagner & McCombs, 1995). In student-centered learning, the student is viewed as an independent agent, an active learner with the right to choose and the freedom to make decisions regarding his or her own learning process. This empowers the students with latitude to manage their study time in an independent manner. Hirumi (1999), for instance, presents a multi-staged process in student-centered learning in which students work with their instructor through a negotiation process to set individual goals and objectives and realize them. The process includes setting the student's challenges, objectives and goals; formulating learning strategies; building the learner's knowledge base; defining the products of the student's learning, level of performance and performance criteria; conducting self-evaluation, peer evaluation and expert evaluation; engaging in control of performance and provision of feedback; communicating on the outcome, where learners share their learning with their friends.

Computer-mediated technology allows the student to take distance learning courses where everything is accessible on a virtual dimension and there is no need to "go to class." However, the freedom afforded by virtual environments requires that individual learners be endowed with sufficient self-discipline and self-motivation to take more responsibility for their own learning, organize their time, and work with the technology on an individual basis. Bonk et al. (1999) analyze student behavior in relation to a diversity of online courses. Their work revealed that behavior in a virtual environment encompasses diverse facets: researching sources on the Web; using the Internet to create sources and products; being more accessible to the Internet; asking questions; producing information and knowledge independently; structuring knowledge, ideas and concepts. Students talk with fellow students in distant places through discussion groups; they learn to "be teachers" and "think didactically" like teachers; they engage in reflection on distance teaching processes and their own learning; they enhance their appreciation of the power of words and begin to exercise more caution in the messages they compose and send to others; they have an opportunity to meet and learn from students from different places and cultures and encounter outlooks and perspectives different than their own. The information the learners receive via digital communication channels does not come in a linear form or structure – edited and arranged as books or articles and closed data bases. Surfing a "sea of information" requires a critical approach to the material, processing and screening what is reliable and relevant, organizing the material compiled, and presenting it with the most appropriate tools. That is, in order to implement their plans in an effective manner, individual learners learn to define their needs, postulate problems, construct a plan of action suitable for a solution, and take action

within a changing world “awash in information” (Melamed, Dayan, & Gal, 1999). In light of the above, it is reasonable to expect that the kind of student who will succeed in distance learning must be autonomous and highly motivated, endowed with a high level of self-efficacy, possess self-confidence of his or her own abilities, and possess a high level of self-control in order to function as an effective problem-solver and cope with the difficulties posed by the technology (Wagner & McCombs, 1995).

Yet despite the tremendous potential of distance learning, it is evident from observation and from the research that there are problematic areas and impediments in the path of learner in a virtual environment (Cohen, 1999). One of the major problems emanates from the social framework – or lack of one – that typifies most distance learning processes. There are students who are not disposed toward individualized learning and for whom distance learning without a social framework can constitute a stumbling block. On the other hand, there are students who are not inclined toward group learning for whom distance learning based entirely on team work could equally be a stumbling block. One of the problems that is liable to arise as a consequence is the student’s sense of isolation on the Net. Moreover, the sheer magnitude of material and tremendous diversity of content on the Internet can leave a surfer at a loss, stymied by a sense of lack of focus. Another problem stems from the lack of the eye contact that is part and parcel of the regular classroom – a fact that can be detrimental to both teachers and students seeking to conduct a learning process with “virtual personalities” who cannot be fully sensed. A further difficulty results from insufficient mastery of the computer skills necessary for distance learning – be they skills in computer-mediated learning such as possession of search strategies and data-gathering techniques geared for Internet; skill at identifying and screening erroneous, unreliable, and extraneous material; application of basic communication skills such as logging in to videoconferencing; or deficiencies in common academic skills such as independent learning. Other difficulties derive from lack of motivation, lack of “rewards,” and technophobia. Additional major stumbling blocks derive from technological and organizational problems on the part of the designers and operators of such courses. Thus, virtual learning environments still tend to engender confusion and consternation among students (Mendels, 1999). The flood of e-mails is burdensome and at times overwhelming; technical bugs disrupt work and amplify the sense of frustration among students.

In conclusion, despite the promise Internet technologies hold for education in general and distance learning in particular, there are still prominent and

persistent problems that impede integration of distance learning in education. This prompts the question: What should the teacher's role in "virtual teaching" or computer-mediated learning environments be in order for teaching to be effective for students?

The Role of the Teacher in a Virtual Learning Environment

The educational literature addresses the changes that can be expected in the role of the teacher as a result of utilization of the computer for realizing teaching and learning objectives. Solomon (1996) defines the role of the teacher in the hi-tech classroom as a diagnostician and moderator whose role is to work with student groups, and help them make progress on their own in coping with the task presented to them by the computer. Solomon claims that teaching and learning in the hi-tech classroom needs to be based on new understandings regarding the psychology of learning and technology – on the possibility that computer technologies, in essence, "invite" the use of computer learning environments in an intelligent fashion. Sheidlinger (1999) presents the role of the teacher as that of a "personal educator" of those learning via computer, where the teachers serve as figures who complement the computer by providing the pupil with personal attention through personal involvement and one-on-one interpersonal contact. Nir-Gal and Klein (1999) typify effective teaching behavior in a computer-mediated environment, emphasizing what Feuerstein et al. (1979; 1980) termed "facilitation variables": intention and reciprocity (focus); facilitating significance (emotion); transcendentalism (expansion beyond satisfaction of immediate needs); facilitating emotions, feelings, senses and abilities (encouragement); regulating behavior. In their view, mediation is what ultimately enables students to utilize the computer to develop their cognitive and learning skills. The qualifications demanded of teachers for wise and intelligent use of computer technologies as an aid require them to "navigate and orchestrate" over computer-integrated dynamic processes taking place in their classrooms, including cognitive, social and personal processes (Levin 1995).

Researchers and educationalists in the field of distance learning stress the changes involved in the role of the teacher between traditional learning formats and a computer-mediated learning environment (Bonk et al., 1999; Rossman, 1999; and others). Today, the distance learning format still involves a high level of interaction between teacher and student; Sherry (1995) believes that such interaction is essential. Various aspects of the role of the teacher operating in a virtual learning environment have been identified: Goldstein and Simka (1999) report the need for technical assistance and support in accessing the Internet and maintaining online communication channels; the pair also note the core role of the teacher as a

moderator, providing encouragement and bolstering motivation to participate in discussions, break the psychological barrier, and pave the way for making a computer-mediated learning environment less intimidating and more a “regular” part of routine life. Cohen (1999) addressed the problem of effective teaching without eye contact, noting that teachers must be aware of the difficulty deriving from lack of contact with and among students, and that a teacher operating in a virtual environment must be able to “come across on screen.”

According to Tagg and Dickenson (1995), one of the important components of distance learning is providing appropriate and specific feedback to students. Tagg argues that the individual distance learners must get the feeling that there is value to their investment and someone is “sitting and responding constructively” throughout the course of their respective learning experiences. Wegerif (1998) points out the important role played by the facilitator in creating social learning and guiding joint reciprocal activities in online courses. Wegerif holds that the social dimension in asynchronous learning via the Internet is a key component in determining participants’ sense of being an “insider” or an “outsider,” and ultimately in participants’ feeling whether the course was successful or not. Rossman (1999) stresses the pivotal role of the teacher in moderating asymmetric forums: in his opinion, the teacher has to be aware of the difference between the learning environment of an asymmetric forum and a regular classroom is important because distant teaching demands “correct performance” on the part of the teacher, who must support and provide guidance to learners in three areas: personal feedback – specific and supportive of the learner; guiding the discussion among learners; guidance in course requirements.

The characteristics of the teacher’s role in online learning found in the professional literature can be classified into core domains where teachers in computer-mediated learning need to provide guidance. They include the technical-operational domain, the content domain, the cognitive domain and the social domain along side the personal-emotional meaning domain. A virtual learning environment seems to require different organization in terms of the teacher’s role as a guide or moderator. The teacher must treat learning problems particular to a virtual environment that students encounter; take into account the needs of individual students and their personal learning styles; be aware of the possibilities inherent in online learning and apply them in a host of learning activities such as team work and collaborative learning limited by geographical constraints; investigate a variety of information sources; encourage dialogs between students and

experts from all over the world, etc. Such roles require that teachers possess the capability to make wise and intelligent use of computer-mediated technology that supports cognitive, social and personal processes. Clearly, a virtual learning environment requires re-formulating the teacher's role. A comprehensive survey of world trends and orientation in the use of the Internet in the school system conducted by Salant (1999) indicates that computer-mediated teaching and learning is a major force in the educational system in the United States, Europe and Israel today. However, the role of the teacher in a virtual learning environment has not generally constituted a subject of inquiry, and when it has been addressed, discussion has been very general, as exemplified in references to a need for "new thinking regarding the teacher's role" in virtual teaching environments (Bonk et al., 1999).

The research at hand addresses the teacher's role in depth, seeking to draw a detailed and comprehensive picture of the teacher's role in distance learning based on the perspective of students actually enrolled in a distance learning course. While effective teaching is not, of course, derived solely from the expectations of the learners, and learners themselves may not be cognizant of all their learning requirements, the significance of the teacher's role from the perspective of the student – important in all cases – is amplified in distance learning where there are no face-to-face meetings between teachers and learners.

Methodology

Thirty-five students enrolled in a course given at Achva Academic College in a distance learning framework during the 1999-2000 academic year participated in the study. The members of the teaching team that conducted the course were skilled in their respective fields and in distance learning. The students were teaching students who had elected to specialize in computers in early education. All had already taken at least one elementary course in computers, but were far from being computer mavens. The overwhelming majority (70%) lacked previous exposure to distance learning and only a minority (30%) had previously experienced distance learning.

Identification of the teacher's role in distance learning from the students' perspective was based on three feedback tools: two open questionnaires – one of guidance expectations, the other on guidance framework preferences; summary reports on peer interviews conducted by students enrolled in the course on guidance expectations; documentation of the content of e-mail correspondence between the course instructor and the students, and dialog from an online technical assistance forum. The

rationale behind basing the research on three sources of input (questionnaires, interviews, and content of online communication) was the need to enhance the quantity of verbal information; bring the responses of the research population into better focus; verify the responses received (Sabar, 1990) and arrive at the most comprehensive picture possible of the teacher's role from the standpoint of the respondents.

During the two-semester course, the students participating in the research received and returned two open questionnaires transmitted by e-mail. In the first, administered early in the course, respondents were requested to detail their needs and expectations of the teachers in the course; in the second, administered at the beginning of the second semester, respondents were requested to address the framework in which guidance was preferred. The interviews were peer interviews in which each student was requested to choose a colleague enrolled in the course with whom to conduct a personal interview; a summary report of the interview was submitted by the interviewer by e-mail. Over the course of the year, e-mail correspondence between the instructor and the students and the forum dialogs was systematically collected and examined in terms of content. In order to respect the rights of study subjects, the students' consent to use the material for research purposes was obtained and the anonymity of the respondents was ensured by removing identifying markings from texts prior to processing.

Findings

In order to identify the characteristics of the teacher's role in a virtual teaching environment from the student's perspective, feedback was first obtained through an open questionnaire. The second questionnaire was devoted to preferred guidance frameworks. The content of responses was analyzed qualitatively via open coding and information axes. The categories that emerged were then analyzed quantitatively. From the data, two principal aspects of the kind of guidance desired by students emerged: (1) the domains in which guidance is sought and their relative importance; (2) the framework in which guidance could and should be provided.

A. Guidance Domains and their Characteristic:

From analysis of feedback from the first questionnaire, four domains for guidance were identified and defined:

1. the technological-operational domain, which focuses on instruction and assistance in solving problems and mastery of the computer skills required by students to participate in the course;
2. the task-oriented domain, which focuses on general guidance in meeting the requirements of particular course assignments;
3. the personal-emotional domain, which focuses on providing personal and emotional meaning for the distance learning student;
4. the social guidance domain, which focuses on nurturing social learning and collaboration in a virtual environment

Figure 1 presents the distribution of the instruction domains of the teacher in a distance learning course, as expressed by the expectation of the participants in the online course and their various needs.

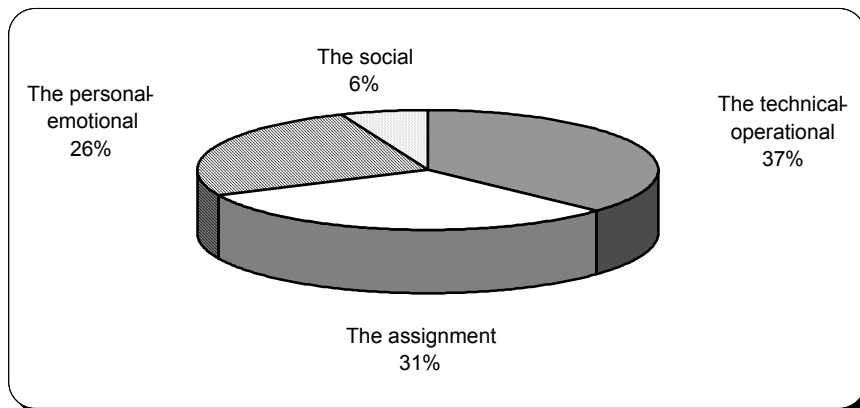


Figure 1: The distribution of instruction domains expected of the teacher in a distance learning course

Examination of the graph demonstrates that among the four domains, the one most prevalently cited by the students was the technical-operational domain (37%). The task-oriented (i.e. assignments) domain occupied 31% of the responses and the personal-emotional domain 26%, while only a small portion of the responses (6%) dealt with the social domain.

In order to understand the needs and expectations of students in a distance learning course, the student's responses on the questionnaires, the interviews and e-mail correspondence were all analyzed. Table 1 presents a number of examples of typical responses within each of the four domains.

Table 1

Characteristic Guidance Expected/Requested	Examples of Questionnaire Responses and Student Queries in E-Mail/Forums
Technical-Operational Domain	"I expect assistance in the technical domain, for instance – snags with fonts on my PC"; "...help with my computer's malfunctions"; "...to master skills in working e-mail"; "...to learn to use forums"; "...to learn skills in using the Internet"; "...and skill in orientation in a virtual dimension."
Task-Oriented (Assignments) Domain	Examples Taken from Students' Messages "...expect directives about course requirements"...guidance in the course assignments"; "...to receive feedback from work assignments"; "...referral to other sources of information"; "...to acquire skill in virtual instruction in the classroom"; "...that the moderators will formulate shorter assignments and not long and complex assignments."

Characteristic Guidance Expected/Requested	Examples of Questionnaire Responses and Student Queries in E-Mail/Forums
Personal-Emotional Domain	“I expect psychological and professional support throughout the course”; “...personal and direct contact”; “...personal attention”; “consideration”; “...understanding”; “...attentiveness”; “...encouragement and reinforcement; “...support”; “a warm relationship; “...the instructors to be patient and understanding”; “...that those who have difficulty will be responded to; “...that [they] will be considerate of us when there are technical problems with the computer that we can’t always control.”
Social Domain	“...that [they] will moderate between students”; “...create a tie with the students”; “...to link up students.”

The technical-operational domain is the domain most in demand (37%) according to the questionnaires. Analysis of appeals for assistance contained in the course’s online technical support forum revealed that most of the requests for technical assistance were in the preliminary stage of the course. At this stage, most requests concerned problems and questions pertaining to elementary computer skills, such as: “*My question is how to open a Word document*”; “*Where is this file?*”; “*How do I add an attachment to e-mail?*”

Furthermore, there were numerous requests for assistance in various computing skills and in solving installation and maintenance problems of Internet tools such as: “*My question is why every time I enter the forum or a new page in the forum, there is a problem seeing Hebrew fonts. I’d be glad to receive an answer*”; “*I wanted to prepare a distribution list to send by e-mail to a number of correspondents, and I’m not sure if I did it right. I’d be glad to know if there is someone who can help me.*”

Another desperate call for assistance read: “*Unfortunately, after unsuccessful attempts to download the Hebrew version of the browser from the Internet and use of the disk [sic, CD-Rom] from a paper I was given, I clearly don’t know what else I can do to upload the program. In the*

meantime I'm having difficulties reading the mail coming to me. What must I do?"

Similar needs were expressed by another student: *"I'll admit that it is not so easy for me, and I'm coping with a lot of difficulties with the Internet itself, because this is the first time in my life that I'm really working with the Internet."*

From such responses, two levels of guidance seems to emerge, emanating to a large extent from the learners' mastery of computer skills (or lack of them):

1. *intense initial guidance* demanded in the first stages of the course, that is – guidance and assistance in solving problems tied to operation of technology necessary at the outset of the course; this varied from student to student, according to the participant's level of readiness in the computer skills required in order to begin the course.
2. *ongoing guidance* throughout the duration of the course – that is, guidance and assistance in solving ongoing problems and requisite computer skills that arose during the course (in addition to structured guidance given as part of the course curriculum).

It was significant to note the dynamics of reciprocal assistance and technical-operational assistance that spontaneously developed among participants in the course. Students with prior experience in online courses or a good command of basic computer skills offered their assistance in the course's online technical assistance forum (designed for staff to help student), answering calls for assistance from less experience members of the virtual class, for instance: *"I read your question with the objective of trying to answer, but unfortunately I didn't understand your question. Try to explain in a different way and I'll try to answer"; "You ask where the file is, so the answer is that it isn't 'anyplace' but you need to create it yourself. Open a file under...and attach it to e-mail...Good luck. I hope I helped."*

And the response: *"...First of all, thanks for the attempt to help me, but in the meantime, I don't know how, the problem solved itself. But thanks nevertheless."*

The reciprocity that developed among fellow students – the "teachers" and the "learners" – is reflected in the following exchanges: *"...You succeeded in helping me...many thanks to the two of you"; "I only wanted to know if you understood the explanation that I gave you and whether you succeeded."*

The teacher-moderators' responses and encouragement of this phenomenon can be seen as well: *"Good for you on the reciprocal assistance and involvement among students in the course; ...We met today for the first time for this forum and I was very impressed by the mutual assistance that the girls in the course offered their fellow colleagues..."*

At the same time, there were other students who were prepared to help but in practice had difficulty extending assistance in a virtual environment, a problem that will be addressed later in this paper. Nevertheless, it seems that "peer teaching" or "peer instruction" in the technical-technological domain can play a significant role in meeting and satisfying overall demands for assistance that participants expect to receive. In essence, two sources of technical-operational assistance became evident: that of the course moderators and that of "peer instructors" rendered as a form of reciprocal assistance among course participants.

The personal-emotional domain plays a core role in the responses of the students. In feedback from e-mail correspondence and student interviews, the need for personal-emotional meaning in a distance learning situation was expressed in a host of ways: *"I only wanted to write and thank you for the words of encouragement you sent me, which I needed so much. I really felt a bit 'behind'"; "...In any case, thanks for the assistance and support, you don't have any idea how much this improved my feeling." "...This was very reinforcing, encouraging and gave a lot of motivation"; "...and again thanks for your calming words"; "I wanted to thank you for your understanding and addressing our request."*

Likewise, there were those who criticized the lack of support on the personal-motional level: *"No one addresses what we say"; "You don't understand us"; "...No one addressed the things I expressed in the interview."*

It seems that the warm words of appreciation and the criticism both reflect a very fundamental need for personal-emotional feedback when teaching in a virtual environment. The computer alone cannot provide this kind of support. Apparently, distance learning without face-to-face meetings amplifies the need for instruction with a strong element of personal-emotional content.

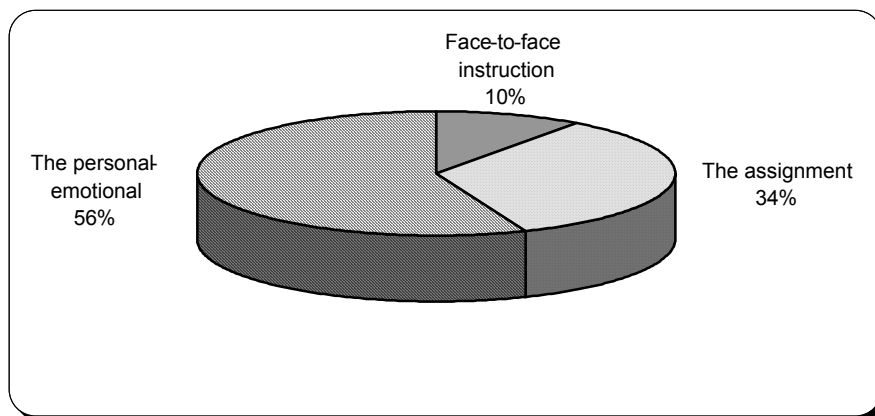
The technical-operational domain may be prominent due to the importance of the centrality of technical aspects in order to function in a distance learning course – for without the tools for communications and problem-solving, one cannot begin to learn. Furthermore, it is important to note that in all four domains, the kind of assistance provided by the staff teaching the

course and “peer guidance” provided by participants to fellow students were not identical or “interchangeable”: In the task-oriented domain, students related to the general instruction required to complete the assignment and did not make a distinction between the technical and cognitive aspects of the assignment. In the social domain, the students related primarily to assistance in communicating with their peers, and cognizance of the need to nurture collaborative facets among the respondents per se was not found. Thus, while “peer guidance” is a positive phenomenon, it cannot replace the cardinal role of the teacher.

B. The Guidance Framework

From analysis of the second questionnaire and the interviews, it was found that there are three guidance frameworks preferred by students in a distance learning environment: guidance solely in a virtual framework; guidance solely in face-to-face meetings; guidance that combines the two. Figure 2 illustrates the breakdown in student preferences.

Figure 2: The distribution of instruction framework preferences in a distance learning course according to student feedback sheets



Although the course was a distance learning course, most of the students – 56% all told – preferred a guidance framework that *combined* both virtual guidance and face-to-face guidance. Distant guidance through the Internet was the preferred framework for assistance among only 34% of the respondents. Interestingly enough, 10% percent of the participants still preferred solely face-to-face guidance even in a course designed for distance learning.

In order to examine and try to understand the motivations behind the respondents' choices, virtual interviews were conducted during the course, in which students interviewed one another and the interviewer sent a summary report of input – some based on quotes, some paraphrased – by e-mail. Table 2 presents examples of the responses that emerged from these peer interviews concerning guidance framework preferences in online courses.

Table 2: Examples of Interview Responses on Preferred Guidance Frameworks in Online Courses

NOTE: The examples are verbatim and unedited text from summary reports, and therefore appear in first or third person, as written.

Preference for virtual meetings only

- “Face-to-face meetings are not lacking for her, and this is because she comes with prior knowledge (before the start of the course) that the objective of the course is a new experience in a virtual environment, which champions contact through electronic mail, a forum, etc.”
- “Face-to-face meetings are not what she’s lacking, because she has the skills needed to use and find her way on the Internet. And the additional information she needs she can get from the course moderators through the Internet.”
- “It’s convenient for her to make contact through electronic mail and after she adopted a work method by which she checks her e-mail box almost every day, and therefore she is ready from the standpoint of work time, the right work environment and readiness to accept new mail.”
- “During the course I didn’t miss face-to-face encounters because the instructions and assignments during the course could be very clearly understood. If I found myself facing problems, I could turn to the moderators for help.”
- “Distance guidance is matter-of-fact and does not allow soul-to-soul talks or deviation from the subject being studied. Beyond this, distance guidance requires personal instruction – the student and the moderator. There is the immediate monitoring whether the student understands what is being taught or not.”
- “The course is distance learning, and it’s just like its name. I don’t see any reason to meet face-to-face. The assignments are clear, the way of studying is clear, and in cases of lack of clarity, there is always someone to speak with.”

- “I really ‘connect’ with distance learning and the guidance framework seems logical and relevant to me. The guidance is professional, on a higher level in my opinion than in a regular classroom.”
- “On second thoughts, regarding the matter of meetings, I thought to myself: Isn’t it better to leave the people behind the forum as ‘mysterious’?”

Preference for face-to-face meetings only

- “Like most of us, she also misses the various meetings that are designed to get to know one another: It’s important to know who stands behind each thought, beyond the name only.”
- “The face-to-face meetings are still missing for her. ‘I still miss verbal expression,’ and wording in writing demands investment in wording and therefore – the discussions in the forum lack ‘vocal intonation.’”
- “There is a need for personal and weekly meetings that include personal guidance for extending help and advice in carrying out the assignments...There is the need for personal meetings in order to get to know the moderators and the participants in the course, in order that the correspondence will become more easy, free and comfortable.”
- “She misses weekly meetings face-to-face. She would prefer to see who the girls are behind the names and the various opinions that she encounters every time she enters the forum. She would feel more comfortable if she could put a face to a name.”
- “She is sure that behind the names of the instructors there are people one can talk to, and more periodic meetings would give a more comfortable feeling, and allow one to anticipate (more or less) the response in various instances.”

Preference for combined meetings – online and face-to-face

- “Since the nature of the course is distance learning, there is no need in my opinion to meet twice a week, but there is certainly room for a meeting or two during the course of the semester in order to clarify ‘problems/difficulties’ and in order to solve the mystery of the people behind the forum.”
- “Sometimes there is the need to meet face-to-face in situations where there are misunderstandings, for instance: files sent that didn’t get to their destinations for unknown reasons, and more.”

- “She recommends that a few meetings be held in the course of the semester in order to clarify problems and difficulties, and particularly in order to solve the mystery of the people behind the forum.”
 - “Thus there is the feeling of closeness and seriousness and familiarity face-to-face.”
 - “Distance learning for all its advantages, a wonderful as it can be, still does not answer the need for personal relations.”
- “...I at any rate think that in the past semester we contributed a lot in that we met with you once a week (in the framework of another course), complained a bit, got a few explanations, instructions and encouragement, and not only virtually. The truth is that it’s a lot more pleasurable for me personally when a meeting such as this takes place.”

From analysis of the student’s responses about their preferences of guidance frameworks, it was found that despite the fact that the course was a distance learning course, the majority of the students preferred a combination of formats – in cyberspace and face-to-face. Among the rationale cited by the respondents were arguments that there have to be “true personal relationships”; face-to-face social integration; a degree of readiness for experiencing virtually; a degree of openness to accept innovation and change; a degree of mastery of skills demanded by an online course; a degree of readiness to clarify problems, difficulties and misunderstandings in a virtual medium and/or in face-to-face meetings; and a certain need “to know” or “not to know” who is the person behind the name, the idea, the thought or the opinion expressed in a forum – to “put names and faces together”; to “solve the mystery” of the people behind the forum; or just the opposite – to leave the people in the forum “veiled.”

Discussion

The research identified the central characteristics of the teacher’s role in distance teaching, as expressed in the expectations and behavior of students actually enrolled in an online course. The findings of the research indicate a need to take into account the diverse needs of students enrolled in distance learning courses, replicating findings in other research on distance learning in which it was found that student needs should be taken into account (Sherry, 1995).

Two dimensions of the teachers’ role were revealed in the research: domains where students need guidance and in what framework such guidance should be provided.

Guidance Domains

It was found that students enrolled in an online course expect guidance in four areas: the *technical-operational* domain, the *task-oriented* domain, the *personal-emotional* domain, and the *social* domain.

In the technical-operational domain, requests for assistance by students were tied to operation of computer communication tools and solving technical problems. These needs were divided into two stages – *initial-intensive guidance* in the opening stages of the course and *ongoing guidance* throughout the course (in addition to *structural guidance* tied to the curriculum itself, which was beyond the focus of the research).

In the task-oriented domain the subjects related to the general instruction they required in order to carry out assignments without exhibiting any differentiation between general and cognitive aspects of the assignment. In the social domain, most needs and expectations were for assistance in communicating with peers, and the subjects showed no awareness of the need for a teacher role to stimulate and guide collaborative online learning among participants. On the other hand, it seems that in online learning frameworks without any face-to-face meetings, the need for guidance with “personal-emotional significance” is amplified.

Among the four domains in which students expect guidance in an online course, the most in demand was the technical-operational domain. One can tie this phenomenon to the findings of Thompson & McGrath (1999) who found that the factor that has the most impact on student satisfaction with distance learning is “convenient accessibility.” In other words, the technological vehicles that allow easy accessibility to the sources of information in the course, learning resources, the teachers serving as course moderators, and the students enrolled with them are the factors that impact most on student satisfaction with online courses and their sense of belonging to the center carrying out such courses. Goldstein and Simka (1999) report the need for technical assistance and support in entering the Internet, carrying out online communication, solving technical problems and operating the computer as well as “breaking the psychological barrier” to genuinely participate in a computer-moderated environment in a smooth and integrated (i.e. “natural”) fashion. Nir-Gal and Klein (1999) pinpointed technical-operational assistance on the part of the teacher as one of the core guidance areas in a computer-moderated environment.

From an analysis of requests and discussion content concerning technical support, it was found that there were two levels of guidance at work: (1) requests for guidance and assistance in solving problems and difficulties emanating from the need to operate the technology required at the outset of

the course; (2) requests for guidance and assistance in solving ongoing problems that arise during the course. Findings regarding the need for different levels of guidance on the technical-operational plane are substantiated in previous research where the need to take into account the degree to which enrollees are acquainted with and have mastery of the technological tools involved in distance learning was noted (Sherry, 1995).

Analysis of the dialog between those seeking assistance and those providing guidance in the technological-operational domain through the online forum for technical support revealed that parallel to formal guidance provided by course staff, informal “peer guidance” developed. Students with prior experience in an online course or better mastery of the requisite computer skills who responded to appeals from other students for assistance have to transform the technical-computerized knowledge they possess. That is, they have to present their technical knowledge in a new form – in written form as “technical texts.” Hoftman, Rosenfeld and Tamir (1999) noted that this process requires a high level of processing and technical-scientific writing skills. The distance learning format dictates that help must be textual – not operational. Thus, offering assistance involves transformation only of “computerized-technological knowledge” relevant to the situation. The dialog reveals that such a “talent” should not be taken for granted: There were students who had difficulty in assisting in a virtual medium through written texts but were prepared to extend actual (i.e. “on-site”) assistance.

It appears that peer guidance in the technical-computer domain can be of great significance in the overall guidance that distance learners expect. Other research substantiates the existence of peer guidance in computer environments (Nir-Gal, in preparation). In observations of students working with computers, it was found that students teach their friends, their parents and at times even their teachers to work computers and use computerized tools, and they do this successfully. It is evident that peer guidance in a computerized environment – including distance learning – in parallel to the social-emotional advantages it entails, can constitute a positive component in guidance in virtual learning environments, in parallel to the formal guidance provided by the teacher.

Feedback from the study at hand indicates that within the framework of virtual distance learning devoid of face-to-face meetings, the need for guidance endowed with “personal-emotional significance” is amplified (perhaps as a form of compensation). The importance of such personal-emotional “rewards” is reflected in the value the students assigned to “peer support” that goes beyond the instrumental technical sphere: “*The words of encouragement you sent me...were much needed by me*”; “*The (personal)*

assistance and support , you have no idea how much they improved how I felt”; “The rapid (personal) response to this e-mail was very reinforcing, encouraging and gave a lot of motivation.”

Equally so, a sense of *lack* of the emotional support engendered sharp criticism: “*No one addresses (personally) what we say...*”; “*...You don’t understand us.*”; “*I wrote and I wasn’t addressed (personally)...*”.

These responses seem to underscore the vital role of personal-emotional significance in virtual guidance. When one sits opposite a computer monitor, not a real human being, the demand for personal-emotional satisfaction grows all the stronger.

One of the sources of the problem stems from a lack of the eye contact that prevails in the regular classroom. This presents difficulties for both teachers and students in carrying out learning process together with “peers” who cannot be fully sensed (Cohen, 1999). Teacher need to be cognizant of the difficulty created by lack of personal contact with and among the students. According to Tagg and Dickenson (1995), individual students in a virtual environment must be given the feeling that there is value to their investment and that there is someone who “sits and responds to them individually.” Nir-Gal and Klein (1999), in isolating facilitative guidance variables, stressed the importance of teachers voicing feelings and appreciation of their students’ work processes in a computerized environment, stressing that such emotional components constitutes “efficient facilitative-teaching behavior” for the teacher.

The research found that students expect a great degree of guidance in the task-oriented domain, but relate to this in very general terms without any distinction between the general aspects and the higher cognitive aspects demanded by the assignment. This is extremely important in light of suggestions in the professional literature that call for guidance on the cognitive level (Solomon, 1996). Nir-Gal and Klein (1999) found that facilitating a transcendental broadening of the pupil’s conscious awareness beyond what he or she needs in order to carry out a given assignment, constitutes effective teaching behavior for a teacher in a computer-mediated learning environment, making it possible to utilize the computer to advance the thinking skills of the student. On the other hand, in regard to guidance in the collaborative-social domain, it seems that students seek assistance in making contact with their peers, and are not aware of the need for guidance in social learning. This finding is contrary to the claims of Wegerif (1998), who pointed to the important role of a human facilitator in forging social learning and guiding shared reciprocal activities in an online course. In Wegerif’s view, the social dimension in learning on the Web

constitutes a significant component that impacts on individual learners' sense of being an "insider" or an "outsider," and feelings of success or failure vis-à-vis the course.

The guidance framework

In data received from the current research regarding the preferred framework for guidance of students, three configurations were found: a solely virtual framework; a mixed framework combining virtual guidance together with face-to-face meetings; and, despite the fact that the course was one dealing with distance learning, there were students who preferred that guidance be provided solely in face-to-face meetings. The student's preferred choice of frameworks was the one combining virtual guidance and face-to-face meetings. In the second interview conducted at the beginning of the second semester, after an initial period of adjustment, the participants still reported a need for face-to-face meetings.

Support for this finding can be found in the professional literature that deals with the diverse needs of students in a distance learning situation (Cohen, 1999; Sherry, 1995; and others). According to Cohen (1999) one of the central problems in distance learning stems from students' need for a social framework and the lack of one in online courses. There are students who are not inclined toward individual study; for such students, a distance learning format without a social framework can generate a sense of isolation on the Web and be detrimental. One may presume that students with a "social study style" will prefer frameworks that combine face-to-face meetings. For instance, among the peer interviews in which the students interviewed one another, one encounters statements such as:

"Like most of us, she also misses the various meetings designed to get to know one another." "It's important for her to know who stands behind every thought, beyond the name only." "She had the feeling that it would be more comfortable for her if she could put a face to a name"; "She recommended that a few meetings be held during the semester in order to clarify problems and difficulties, and particularly to solve the mystery of the people behind the forum."

Evidently, the "mystery" of the people behind the names, the messages, the e-mail messages in online learning generates tremendous curiosity among those studying in a distance learning course. On the other hand, there are students who are not inclined to study in groups, and a totally online learning framework can be suitable for them and accommodate their learning style. For instance, among the peer-conducted interviews, one encounters statements such as: *"...I really 'connect' with the distance learning route, and the guidance framework seems logical and relevant to*

me.” *“The distance instruction is to the point and doesn’t permit heart-to-heart talks or diversions from the subject being studied.” “Distance instruction requires personal instruction – a student and a moderator.” “There is immediate control whether the student understands what is being taught or not.” “On second thoughts, in the matter of the meetings I thought to myself: Isn’t it maybe better to leave the people behind the forum mysterious?”*

On the other hand, it is possible that face-to-face meetings in an online course is a response to a lack of the eye contact that is characteristic of a regular classroom. The lack of such “physical intimacy” is liable to cause difficulties for some students to carry on a learning process with “virtual” moderators who cannot be sensed, addressed face-to-face, questioned, asked for advice, or expected to provide explanations as in the classroom. There is support for this in the interviews and the feedback from students, for instance: *“Distance learning, with all its advantages, no matter how wonderful it may be, still doesn’t answer the need for personal attention from the teacher.” “She’s sure that behind the names of the instructors are people with whom it’s possible to speak.” “There is a need for personal meetings in order to get to know the moderators in the course, so that the correspondence will become more comfortable, free and pleasant.”*

However, it is equally possible that the need for “real” classroom meetings results from other learning problems, for instance: lack of academic skills in independent learning (Cohen, 1999) or the need to carry out textual assignments. For the most part, online discussions and instructions take the form of writing. Difficulty in writing (from composition to keyboarding) and reading comprehension and distress in carrying out textual assignments that require reading and writing, place obstacles before such learners and cause them to require more clarification and more learning sessions with an instructor. This is substantiated in the student interviews, for instance: *“I don’t always understand what is written in the virtual assignment.”* Or *“...I didn’t understand (but also) I didn’t ask virtually [sic, via online communication channels]. Or “Please write shorter assignments”” “So much written [text] that I didn’t understand...”; “It’s difficult for me that it is impossible to talk face-to-face, and everything has to be written.”*

It is interesting that there are still students who need “real” meetings and do not want to give them up. It may be that this need is indicative of lack of self-confidence among certain students when faced with working in a totally virtual environment. This possibility is substantiated in the work of

Mendels (1999) who cautions that virtual learning environments are liable to engender confusion and consternation among students in the face of a flood of e-mails and technical problems that impede work and amplify a sense of frustration. It is reasonable to assume that as students gain experience and self-confidence in application of computer technologies, they will express more willingness to meet in a solely virtual setting. This seems to be the spirit of things expressed in feedback from students, such as the respondents in interview reports: *“In the face-to-face meeting, she is not often lacking in direction, and she has the skills necessary to use and find her way on the Internet, and the additional information she needs she can get, virtually, from the course moderators on the Internet”*; *“It is convenient for her to communicate through electronic mail after she adapted a suitable work mode for herself.”*

On the other hand, analysis of peer interviews with students in their second year in a virtual environment demonstrates that there is no reduction in the need for face-to-face meetings. In other words, there was no significant difference in the need for ‘the human touch’ between students encountering distance learning for the first time and students acquainted with the milieu and familiar with the tools of a virtual environment. It is possible, therefore, that the need for face-to-face meetings in online courses arises mainly from other needs such as entrenched student learning styles or psychosocial needs – not mastery or lack of mastery of communication technologies.

It is also possible that the ability to adjust to virtual meetings hinges to a certain extent on the personality components of the learner – for instance “openness to change and innovation,” as manifested in the following example: *“She is not lacking in face-to-face meetings, and this is because she knew in advance (before the beginning of the course) that the course objective is a new experience in a virtual environment that champions communication via electronic mail, forum and more.”*

Online learning demands that students exhibit self-discipline and self-motivation, take more responsibility for their learning processes, organize their time, and work alone with technology (Bonk et al., 1999). The kind of students who excels in a learning environment that demands effective functioning as a problem-solver and coping skills to overcome technological difficulties needs to be autonomous and highly motivated, endowed with a high degree of self-efficacy and self control, belief in themselves and their abilities (Wagner & McCombs, 1995). This is reflected in student feedback, for instance: *“The course demanded of me personal responsibility and self-discipline, and something else as well, that*

I mentioned in the advantages, and I see it as a drawback as well: The option to go into a lesson whenever I want causes me, in any case, [a sense of] exaggerated complacency.”

In light of the above, it seems that computer-moderated technologies allows learners to free themselves from the constraints of time and space and to maintain learning interactions within a flexible time frame and a venue unfettered by geography. However, many students still need a “true human touch” – a facet addressed by Healy (1998) who claims that online ties are amplified by face-to-face ties and online courses need to combine the two. Clearly, online communication cannot totally replace direct face-to-face contact, and future research needs to examine more fully various models of interaction in distance learning – teacher-student and student-student – and their impact on different students.

Conclusion

The overall data lead to the conclusion that distance learning in a virtual environment demands a different kind of deployment in terms of the teacher’s role in a computer-mediated environment. There has to be a clear differentiation between the role of the teacher in traditional learning and the role of the teacher as a guide or mediator in a computer-mediated environment. The research indicated that although the technology constitutes an integral part of distance learning, in order to carry out effective teaching-learning in a virtual environment, one must take into account various other learning needs of students in online courses, including: social needs to meet face-to-face; personal-emotional needs; cognitive needs that arise from the demands of learning assignments; and of course, vehicles and techniques for facilitating acquaintance and mastery of the technical tools students requires in order to engage in distance learning.

Bibliography

- Baker, C. & Danley, W. E. (1996). Comparing computer-assisted instruction and traditional instruction for preparing regular teachers to serve students with disabilities. *Computers-in-the-Schools*, 12, 8-31.
- Beaudin, P. B. (1999). Keeping online asynchronous discussions on topic. *Journal of Asynchronous Learning Networks*, 3.
http://www.aln.org/alnweb/journal/Vol3_issue2/beaudin.htm
- Bonk, C. J., Cummings, A. J., Hara, N., & Fischler, B. R. (1999). *A ten level web integration continuum for higher education: New resources, partners, courses, and markets*.
<http://php.indiana.edu/~cjbonk/paper/edmdia99.html>

- Cohen, A. (1999). Instrumental teaching and distance learning via the Internet. *Computers in Education*, 49, 8-16. (Hebrew)
- Feuerstein, R., Rand, Y., & Hoffman, M. B. (1979). *The dynamic assessment of retarded performers*. Baltimore: University Park Press.
- Feuerstein, R., Rand, Y., Hoffman, M. B., & Miller, R. (1980). *Instrumental enrichment for cognitive modifiability*. Baltimore: University Park Press.
- Goldstein, E. & Simka, M. (1999). Yahadnet – A forum for online discussions among teacher trainers. *Almost 2000*. The PR&D Institute and Division for Teacher Training. The Ministry of Education, Culture and Sports. (Hebrew)
<http://www.macam98ac.il/~olzang/tg/tg.htm>
- Harasim, L. (1990). On-line education: An environment for collaboration and intellectual amplification. In: L. Harasim (Ed.), *On-line education: Perspectives on a new environment*, pp. 39–64. New York: Praeger.
- Harmon, S. & Hiram, A. (1996). A systemic approach to the integration of interactive distance learning into education and training. *Journal of Education for Business*, V71, 267-271.
- Healy, J. M. (1998). *Failure to connect: How computers affect our children's minds – for better and worse*. New York: Simon & Schuster.
- Hirumi, A. (1999). *Student-centered, technology-rich learning environments (SCenTRLE): Operationalizing constructivist approaches to teaching and learning*. Houston: University of Houston.
- Hoptman, S., Rozenfeld, S., & Tamir, R. (1999). *A research report – Student training for academic writing: An examination of the application of models and writing processes learned at the teaching stage of dissertation writing*. M.A. Beer Tuviah, Israel: Achva College of Education in cooperation with the PR&D Institute. (Hebrew)
- Levin, T. (1995). Curricula in the technological era. In: Chen, D. (Ed.), *Education towards the 21st century*, pp. 73-86. Tel Aviv: Ramot Publishers, Tel Aviv University. (Hebrew)
- Melamed, U., Dayan, R., & Gal M. (1999). *Telecommunication based study means and processes*. Jerusalem: The Ministry of Education and Culture. The Technology & Science Technology Division. (Hebrew)
- Mendels, P. (September 22, 1999). Study finds problems with web class. *New York Times*.
- Nir-Gal, O. (1998). *Adult mediated or individual use of computers by young children and its influence on the children's cognitive activity*. A Doctor of Philosophy dissertation. Ramat Gan: The School of Education, Bar-Ilan University. (Hebrew)
- Nir-Gal, O. (in preparation) *Peer instruction in the computer assisted learning environment*. Beer Tuviah, Israel: Achva Academic College. (Hebrew)

- Nir-Gal, O. & Klein, P. (1999). Young children's use of computers with and without adult mediation: Effect on cognitive functioning. *Dapim*, 29, 76-100.
- Rossman, H. M. (1999). Successful online teaching using an asynchronous learner discussion forum. *Asynchronous Learning Networks*, 3. http://www.aln.org/alnweb/journal/Vol3_issue2/rossman.htm
- Sabar Ben-Yehoshua, N. (1990) Qualitative Research. Tel Aviv: Massada. (Hebrew)
- Salant, A. (1999). The Internet in educational systems in the world: Trends and aims). In: Melamed, A., Dayan, R., & Gal M. *Telecommunication based study means and processes*. Jerusalem: The Ministry of Education and Culture. The Technology & Science Technology Division. (Hebrew)
- Salomon, G. (1996). Technology rich study environments: A suggested conceptual framework. In: Mevarekh, Z. & Chativa, N. (Eds.), *The computer-in-the-school*, pp. 17-38. Jerusalem & Tel Aviv: Schocken Publications. (Hebrew)
- Schwarz, E., Brusilovsky, P., & Weber, G. (1996). World-wide intelligent textbooks. In *Proceedings of ED-TELECOM '96 – World Conference on Educational Telecommunications*, pp. 302-307. Boston, MA: AACE. <http://www.education.uts.edu.au/projects/ah/publications.html>
- Sheidlinger, Z. (1999). Hello Mr. Teacher: The computer and the future of the education system. *PC Media*, April, 60-61. (Hebrew)
- Sherry, L. (1995). Issues in distance learning. *International Journal of Distance Education*, 1, 337-365.
- Tagg, A. C. & Dickenson, J. A. (1995). Tutor messaging and its effectiveness in encouraging student participation on computer conferences. *Journal of Distance Education*, X(2), 33-55.
- Thompson, M. M. & McGrath, W. J. (1999). Using ALNs to support a complete educational experience. *Journal of Asynchronous Learning Networks*, 3. http://www.aln.org/alnweb/journal/Vol3_issue2/thompson.htm
- Wagner, E. D. & McCombs, B. L. (1995). Learner centered psychological principles in practice: Designs for distance education. *Educational Technology*, 32-35.
- Wegerif, R. (1998). *The social dimension of asynchronous learning networks*. http://www.aln.org/alnweb/journal/vol2_issue1/wegerif.htm

