

# Challenges of Integrating Technologies for Learning: Introduction to the IJELLO Special Series of Chais Conference 2010 Best Papers

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## Abstract

The adaptation of innovative technologies for learning and teaching faces learners, developers and instructors with a wide range of challenges that should be considered for a successful implementation. This *Interdisciplinary Journal of E-Learning and Learning Objects* (IJELLO) second issue of special series is based on selected best papers presented in the Fifth Chais Conference on Instructional Technologies Research 2010: *Learning in the Technological Era*, which was held at The Open University of Israel, Raanana, Israel, on February 10, 2010, and was organized by the Chais Research Center for the Integration of Technology in Education.

This preface presents the mission and activities of the Chais research center, describes the objectives and themes of the Chais Conference 2010, explains its synergies with IJELLO and the Informing Science Institute, and introduces the papers included in this special issue.

**Keywords:** instructional technologies, e-learning, technology integration in education, diffusion of innovation, human-computer interaction, usability, collaborative learning.

## Introduction

The technologies that we use for teaching and learning are characterized by three major affinities:

- Most of them are developed for organizational, entertainment, and communication management purposes in civilian and military organizations, and not inherently for educational purposes. It is the responsibility of instructional designers to modify and adapt them for educational goals.
- Technologies-enabled learners' interactions call for reconsidering the traditional pedagogical routines, revisiting learning theories, reconstructing learning environments, and reshaping student-teacher, as well as student-student, relationships.
- They undergo continuous and rapid changes, which require a constant change in the models used for inte-

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gration and utilization of these technologies for teaching and learning.

This situation presents five major challenges for users and developers of instructional technologies:

1. In designing learning environments, developers must consider the particular cognitive, emotional, and ergonomic skills that are required in order to use these environments effectively.
2. Educators must improve their understanding of the nature and pedagogical potential of each of the available learning technologies.
3. Learning theories should take into account the knowledge gained from the implementation of learning technologies.
4. New instructional models and strategies for employing new technologies should be developed.
5. Research is needed to improve our understanding of the impact of using technologies on learners' achievements and attitudes.

A community of researchers and practitioners who collaborate with each other is required in order to cope successfully with the above-listed challenges, and this is the main mission of the Chais Research Center and the "*Learning in the Technological Era*" annual Conferences.

The Chais Research Center for the Integration of Technology in Education is a consortium of about 50 researchers of the Open University of Israel (OUI) faculty, which serves as the OUI research arm for the study of technologies and their integration in teaching and learning. The mission of the Chais Research Center is to encourage theoretical and practical research at the OUI and to improve the quality and efficiency of utilizing information technologies in learning and teaching. As the major instructional technologies research center in Israel, The Chais Center promotes the formation of a local community of instructional technologies researchers by funding research projects and by holding seminars, symposia, conferences, and study groups.

These are some of the fields of research, which the Chais Center is engaged in:

- The theoretical foundations of learning, instructional technologies and distance education.
- The integration of information and communication technologies into educational systems.
- Defining and characterizing the variables needed for developing flexible and adaptive technology enhanced instructional strategies that respond to students' individual needs.
- Studying the pedagogical and cognitive contributions of emerging technologies on teaching and learning.

"Learning in the Technological Era" is a series of annual national research conferences on learning technologies initiated by the Chais Research Center in collaboration with EDEN, The European Distance and E-Learning Network. The conference contributes to the formation of a community of Israeli researchers in the field of instructional technologies and to the positioning of the Open University of Israel as a leading organization in the study and implementation of learning technologies. About 500 researchers from most of the academic institutions in Israel and from many organizations and companies participate in the conference each year.

The purpose of this IJELLO special series of Chais Conference best papers is to enhance the international impact of the Chais conference by distributing high quality papers from the local conference to worldwide audience. The Informing Science Institute (ISI) is a natural partner for this mission because it draws together researchers and practitioners of information technologies, who seek effective ways to inform clients about sharing their knowledge with others

(<http://www.informingscience.org/>). The informing science transdiscipline studies the informing process, defined as providing a specific clientele with information in a form, format, and schedule that maximizes its effectiveness (Cohen, 1999, 2009; Gill & Cohen, 2009). Instructional technologies are a certain type of information technologies, which aim at providing students and other learners with information and tools to enhance their learning. Within the ISI journals, the *Interdisciplinary Journal of E-Learning and Learning Objects* publishes high quality articles on theory, practice, innovation, and research that cover all aspects of E-learning and Learning Objects (<http://www.ijello.org>). The first issue of this series was published last year, and included 13 selected papers, which dealt with various aspects of technology integration in teaching and learning, collaborative learning environments, quality of mobile learning, motivation for technology use, and more (Eshet-Alkalai, Caspi, Eden, Geri, & Yair, 2009).

## Chais Conference 2010 Best Papers

Out of 75 short papers that were submitted to Chais conference 2010 and underwent a blind peer-review process, 39 papers and 15 posters were presented at the conference and were included in the conference's proceedings volume (Eshet-Alkalai, Caspi, Eden, Geri, & Yair, 2010). This second issue of the IJELLO Special Series of Chais Conference Best Papers includes nine of the most outstanding Chais Conference 2010 papers, which were expanded and modified for publication in IJELLO and have undergone a full review process by the IJELLO editors and reviewers.

The first three papers of this issue deal with the integration of technology in education systems and diffusion of innovation in learning environments. Ina Blau and Mira Hameirie ("Implementing technological change at schools: The impact of online communication with families on teacher interactions through learning management system") studied the implementation of a learning management system in high schools and found that the use of the system for teacher-student and teacher-parent online interaction significantly enhanced its use for interactions among teachers. Their findings suggest that involving students and parents in the process of implementing new technologies at school may contribute to successful adoption.

Orit Avidov-Ungar ("Islands of innovation" or "comprehensive innovation") examined the implementation of a learning management system in seven schools, which were part of a school network. Her qualitative analysis indicates that sporadic "islands of innovation" created an appearance of successful technology implementation when actually no real "comprehensive innovation" occurred.

Zvia Elgali and Yoram Kalman ("Analyzing the construction of the failure and success concepts in K-12 ICT integration projects") used Actor-Network Theory and compared the perceptions of failure and success in the integration of two programs in the K-12 system. They point to several differences between the programs that may be possible causes for the increased level of talk of failure with regard to one of these programs.

Two instructors: Ronen Hammer and Miki Ronen, and their students: Amit Sharon, Tali Lankry, and Yoni Huberman ("Mobile culture in college lectures: Instructors' and students' perspectives") explored college instructors' and students' attitudes towards use of mobile devices, mainly laptops and cellular phones, for non-academic purposes during lectures. One of their most interesting finding is the sense of cognitive dissonance of students who perceive mobile devices use as disturbing instructors and peers and yet believe that such usage is legitimate.

Galit Ben-Zadok, Moshe Leiba, and Rafi Nachmias ("Comparison of online learning behaviors in school vs. at home, in terms of age and gender, using data mining techniques") examined characteristics of online learning at school and at home. They found that the school-home gap is beginning to close, yet there were differences in time and pace, as well as of quality of learning.

Ariela Levenberg and Avner Caspi (“Comparing perceived formal and informal learning in face-to-face versus online environments”) compared perceived learning of elementary school teachers in four learning environments: formal – face-to-face; informal – face-to-face; formal – online; informal – online. Their findings suggest that perceived learning was higher in a formal setting, and teachers that communicated online had perceived higher levels of learning.

Ruti Gafni and Nitza Geri (“The value of collaborative e-learning: Compulsory versus optional online forum assignments”) analyzed the impact of compulsory submission on the effectiveness of forum assignments. Their results indicate that although the students had a task-oriented attitude and were not engaged in social interaction, compulsory posting on the discussion board improved their performance.

Yehuda Peled and Miriam Sarid (“The effect of procrastination on multi-drafting in a web-based learning content management environment”) examined student use of a mechanism that enabled multi-drafting of assignments and their improvement according to the teacher’s feedback. Although there was a positive significant correlation between the number of drafts submitted per assignment and the final grade, some of the students did not take advantage of the mechanism offered.

Rikki Rimor, Yigal Rosen, and Kefaya Nassar (“Are two better than one? A study of social interaction patterns in an online collaborative database environment”) characterized social interaction patterns in a collaborative learning environment (Google Docs), in which participants were required to reach consensus in the process of database construction. Their analysis suggests that the online database contributes to the development of complex patterns of interaction.

These papers represent most of the themes of the Chais conference 2010 proceedings. The following themes were presented at the conference but were not covered in this special issue: Instructors’ training in technological environments; Games and learning environments; Visualization; knowledge representation.

## Conclusion and Acknowledgements

We hope this second issue of IJELLO special series of Chais conference best papers will be of interest to the readers and will encourage future innovative and synergetic instructional technologies research. We look forward to the IJELLO next issue of the best papers of Chais conference 2011, which is scheduled to February 17, 2011, at the Open University of Israel campus in Raanana, Israel.

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## Biographies



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