המרכז לחקר חדשנות בטכנולוגיות למידה
Research Center for Innovation in Learning Technologies

The Open University of Israel

Research Center for Innovation in Learning Technologies

ANNUAL REPORT

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Prepared by Dr. Sigal Eden and Prof. Yoram Eshet- Alkalai

Contents

1. Introduction

As a university based on distance learning, the Open University is committed to the ongoing examination and improvement of its teaching quality through the integration of innovative learning and teaching technologies. The Research Center for Innovation in Learning Technologies functions as the research division of the Open University for exploring emerging technologies and developing models and strategies for their integration in learning. The main objective of the center is to promote research related to the enhancement of instruction using innovative learning technologies. The Center is composed of a consortium of about forty faculty members from various Open University departments. It supports studies conducted by its members and by their students. The Center conducts a large variety of ongoing academic activities such as symposia, workshops, conferences and research seminars. The Research Center for Innovation in Learning Technologies operates in close collaboration with *Shoham* - The Center for Integration of Technologies in Distance Education at the Open University, whose Director is a member of the Center's Steering Committee. The Center conducts international activities, such as collaboration with *EDEN* - the European Distance Education Network and publishing conference papers in a special issue of *IJELLO - Interdisciplinary Journal of E-Learning and Learning Objects*.

The Center was founded in 2003, as the Chais Research Center for the Integration of Technology in Education, with by a donation from the late Mr. Stanley Chais. In 2010, following the cessation of the donation, the Chais Center was closed and was substituted by the present Research Center for Innovation in Learning Technologies.

The following are some of the fields of research in which the Research Center for Innovation in Learning Technologies is engaged:
- The theoretical foundations of learning, instructional technology and

distance education.

- Integration of innovative 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.

Structure and mode of operation

The Research Center for Innovation in Learning Technologies operates as an independent unit under the auspice of the university's Dean of Research Affairs and is headed by a senior faculty member of the Open University. It consists of about 40 members from various academic departments, one part-time research associate and one guest scientist.

The Research Center funds research and other professional activities conducted by its members, as well as by outstanding graduate students who specialize in instructional and information technologies.

The Research Center for Innovation in Learning Technologies conducts a wide range of academic activities, such as research seminars, conferences and symposia, which are open to the academic community. In addition, a monthly newsletter, "*Dagim,*" was published for the last six years.

Organizational structure (as of 2010)
- **Head of the Center:** Prof. Yoram Eshet-Alkalai
- **Research Fellow:** Dr. Sigal Eden
- **Guest Scientist:** Dr. Paul Gorsky
- **Steering Committee:** Prof. Yoram Eshet-Alkalai (Chair), Dr. Avner Caspi, Dr. Sigal Eden, Dr. Nitza Geri, Ms. Edna Tal, Prof. Yoav Yair

- **Research Committee members:** Dr. Tali Heiman (Chair), Dr. Sigal Eden, Dr. Inbal Tuvi, Dr. Paul Gorsky, Ms. Eva Klein-Friman (Secretary)

- **Newsletter editor:** Ms. Ingrid Mesika

- **Secretary:** Ms. Osnat Tsarfat**i**

- **Web Master:** Ms. Batsheva Engelberg-Behr

Website http://www.innovation.openu.ac.il

2. Research Seminars, Symposia and Conferences

Research seminars

The Chais Research Center conducts regular research seminars in which researchers present their research studies on learning technologies. The following lectures were delivered in 2010:

Dr. Yoram Kalman (OUI): The Impact of Innovative Technologies on Business Models of Higher Education Institutes. 25.1.2010

Prof. Vijay Kumar (MIT): Opening up Education - What Will It Take? 8.2.2010

Dr. Hagit Yarden (Weizmann Institute): Using Animations for Teaching and Learning: The Case of Biotechnology. 8.3.2010

Dr. Ronit Kempf (Tel Aviv University): Digital Natives and the Israel-Palestine Conflict: The Peacemaker Case. 26.4.2010

Ms. Tami Neutal (OUI): Characteristics of Using Online Environments in Academic Teaching. 7.6.2010

Ms. Penina Stern (Tel Aviv University): Attention and Reading from Print and From Digital Displays. 18.10.2010.

The Future of E-Books (29.11.2010):

Prof. **Yoram Eshet** (OUI): What do We Know of Reading from Digital Displays?

Mr. Amir Winer (OUI): Where Does it Go? The Present-Days E-book Market

Prof. **Yoav Yair** (OUI): Recent Dilemmas in Digital Reading

Mr. Itai Har-Even (OUI): Introduction to E-Book Readers

Symposia

As part of our reaching-out efforts to the academic community, both in the Open University and in other academic institutes, as well as to the general public, in 2010, the Research Center for Innovation in Learning Technologies conducted a series of symposia which were open to the public. Each symposium focuses on selected issues concerning innovative technologies and their impact on our

society. The events were broadcast live, drew wide attention and were very well attended. Lectures can be viewed on the research center's website. The following symposia were conducted in 2010:

Reading in the Digital Era (20.1.2010)

Prof. Yoram Eshet & Dr. Oren Soffer (OUI): Back to the Future: An Historical Perspective on the Cyclical Nature of the Evolution of Literacy

Dr. Rakefet Ackerman (Technion): Learning from Print versus Learning from Digital Displays.

Avi Warshawsky (CET): The New Literacy and the Education System

Prof. Yoav Yair (OUI): Will we Become the Nation of Digital Books?

Dov Alfon (Haaretz): The Internet and the Book: Who will die First?

Information Flows in the Web (13.6.2010)

Prof. Yuval Shavit (Tel Aviv University): Who Will Be the Next Pop Star? Dynamics in File-Sharing Networks.

Gilad Ravid (Ben Gurion University): Center and Periphery in Social Networks

Mr. Hanan Cohen: Fiction or Real in Chain Letters on the Net.

Dr. Nitza Geri (OUI): Network Economy: The Winner Takes it All.

Prof. Yoav Yair (OUI): Information Transportation Patterns in Lightening Storms.

Innovation in Learning Technologies (9.11.2010)

Prof. Sarah Guri-Rosenblith (OUI): The integration of Innovative Technologies in Higher Education: Trends and Challenges

Prof. Yoav Yair & Prof. Yoram Eshet (OUI): Dilemmas in Designing and Integrating Innovative Technologies for Learning.

Prof. Dafna Lemish (Tel Aviv University): New Present Versus Old Dilemmas: Youth and Recent Communication Technologies

Conferences

Learning in the Digital Era: The ⁵ᵗʰAannual Research Conference of the Research Center for Innovation in Learning Technologies (10.2.2010)

http://telem.openu.ac.il/hp_files/chais/09/articles.html

The fifth annual research conference entitled "Learning in the Digital Era" was held on the 10.2.2010. The conference received a very positive response from the academic and professional community, with a very high attendance (~ 500 participants) and submissions (~70 submitted papers). It was conducted on the Open University campus, with forty lectures and a poster session, preceded by a keynote lecture by Prof. Vijai Kumar (MIT). The conference was organized in collaboration with EDEN - The European Distance Education Network. Papers were published in a special Proceedings volume. Extended versions of the best papers were published in a special issue of IJELLO: *Interdisciplinary Journal of E-Learning and Learning Objects.*

Lectures and papers are available at:

http://telem.openu.ac.il/hp_files/chais/10/site.html

3: Publications in Refereed Journals and Book Chapters

Blau, I., & Caspi, A. (2010). Media naturalness, visual anonymity, and learning: Comparing face-to-face and audio conferencing instruction. In N. Kock (Ed.), *Evolutionary psychology and information systems research: A new approach to studying the effects of modern technologies on human behavior* (pp. 193-216). New-York: Springer.

Blau, I., & Hameiri, M. (2010). Implementing technological change at schools: The impact of online communication with families on teacher interactions through Learning Management System. *Interdisciplinary Journal of E-Learning and Learning Objects, 6,* 245-257.

Dromi, E., Eden, S., Zadunaisky-Ehrlich, S., Ringwald-Frimerman, D., & Levy, H. (2010). Script as a model of language intervention. Maalot; Ministry of Education. (Hebrew).

Elgali, Z., & Kalman, Y. M. (2010). The Construction of Failure and Success Concepts in K-12 ICT Integration. *Interdisciplinary Journal of E-Learning and Learning Objects, 6, 281-292.*

Erlich Z. & Zviran M. (2010). Goals and Practices in Maintaining Information Systems Security. *International Journal of Information Security and Privacy*, *4*(3), 42-52.

Eshet-Alkalai, Y., & Geri, N. (2010). Does the medium affect the message? The effect of congruent versus incongruent display on critical reading. *Human Systems Management, 29*(4), 243-251.

Gafni, R., & Geri, N. (2010). The value of collaborative e-learning: Compulsory versus optional online forum assignments. *Interdisciplinary Journal of E-Learning and Learning Objects, 6*, 335-343. Available at http://www.ijello.org/Volume6/IJELLOv6p335-343Gafni705.pdf

Gorsky, P., & Caspi, A. (2010). Learning science at a distance: Instructional dialogues and resources. In L. Shaw & D. Kennepohl (Eds.). *Accessible elements: Teaching science online and at a distance* (pp. 19-36). Athabasca University Press.

Gorsky, P., Caspi, A., Antonovsky, A., Blau, I., & Mansur, A. (2010). Hidden structures in asynchronous learning communities. *The International Review of Research in Open and Distance Learning, 11*(2)*,* 49-72.

Levenberg, A., & Caspi, A. (2010). Comparing perceived formal and informal learning in face-to-face versus online environments. *Interdisciplinary Journal of E-Learning and Learning Objects, 6*, 323-333.

Meisher-Tal, H., & Gorsky, P. (2010). Wikis: What students do and don't do when writing collaboratively. *Open Learning: The Journal of Open and Distance Learning, 25*(1), 25-35.

Passig, D., Eden, S. (2010). Enhancing time-connectives with 3D Immersive Virtual Reality (IVR). *Journal of Educational Computing Research*, *42*(3), 307-325.

Rimor, R., & Rosen, R. (2010). Collaborative Knowledge Construction in Online Learning Environment: Why to Promote and How to Investigate. In: *Cases on Technological Adaptability and Transnational Learning: Issues and Challenges.* IGI-Global, USA (www.igi-global.com).

Rimor, R., Rosen, R., & Nassar K. (2010). Are two better than one? A study of social interaction patterns in an online collaborative database environment. *Interdisciplinary Journal of E-Learning and Learning Objects, 6*, 355-365.

Tuvi-Arad, I., & Blonder, R. (2010). Continuous symmetry and chemistry teachers: learning advanced chemistry content through novel visualization tools, *Chemistry Education Research and Practice, 11*(1), 48-58.

4: Lectures Presented at Conferences

Blau, I., & Barak, A. (October, 2010). *Synchronous online participation: The effects of participant's personality and discussion topic on participation in face-to-face versus voice chat, and textual group discussions.* Paper presented at the 11th Annual Conference of the Association of Internet Researchers (AoIR): Sustainability, Participation, Action. University of Gothenburg, Sweden.

Blau, I., & Caspi, A. (June, 2010). *The influence of individual and collaborative learning on the sense of ownership, perceived learning and outcome quality.* Paper presented at the 8th MEITAL National Conference: E-Learning and Teaching in Academia. Ra'anana, Israel: The Open University of Israel.

Blau, I., & Hameiri, M. (2010). Implementing technological change: Promoting online interactions at schools through "Mashov" Learning Management System. In Y. Eshet-Alkalai, A. Caspi, S. Eden, N. Geri, & Y. Yair (Eds.), *Learning in the Technological Era* (pp. 24-31). Ra'anana, Israel: The Open University of Israel.

Bogler, R., Caspi, A., & Roccas, S. (2010). *The moderating role of expected academic achievements on the relationship between instructor behavior/leadership and student satisfaction.* Paper presented at 24th annual convention of the University Council for Educational Administration (UCEA), New Orleans, Louisiana.

Cohen, M., Heiman, T., & Gorsky, P. (2010). *Using a technology kit to integrate visually impaired students in regular classrooms.* In Eshet-Alkalai, Y*., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era* (pp. 217-219). Ra'anana, Israel: The Open University of Israel.

Dubi, T., & Gorsky, P. (2010). *Developing reasoning skills about personal finance by means of the Webkinz.com game.* In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on

Instructional Technologies Research: Learning in the Technological Era (pp. 57-65). Ra'anana, Israel: The Open University of Israel.

Eden, S., (September, 2010). *The effect of using laptops on the spelling capabilities of students with LD.* EARLI: Teaching, Learning and diversity. Goethe University of Frankfurt, Frankfurt, Germany.

Eden, S., Shamir, A., & Freishtman, M. (2010). *The effect of using laptops on the spelling capabilities of students.* In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 162-169). Ra'anana, Israel: The Open University of Israel.

Elgali, Z., & Kalman, Y. M. (2010). *Using actor-network theory to analyze the construction of the failure concept in a K-12 ICT integration program.* In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 46-53). Ra'anana, Israel: The Open University of Israel.

Gafni, R., & Geri, N. (2010). *The effectiveness of compulsory versus optional online forum assignments.* In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 32-37). Ra'anana, Israel: The Open University of Israel.

Kalman, Y.M. (2010). *How low can you go? The tuition-free business model of The University of the People.* In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 26-31). Ra'anana, Israel: The Open University of Israel.

Levenberg, A., & Caspi, A. (2010). Comparing perceived formal and informal learning in face to face versus online environments. In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the

Technological Era (pp. 137-143). Ra'anana, Israel: The Open University of Israel.

Levin, T., & Caspi, A. (2010). *Reserved richness to the owner: For his sake or weakness? Examining the influence of media richness on two instructional methods of difficulty learning material*. In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 129-136). Ra'anana, Israel: The Open University of Israel.

Mor, N. (August, 2010). *Enhancing professional development of teacher educators via a long term ICT*. ATEE - 35th Annual Conference of the Association for Teacher Education in Europe Budapest.

Olenik-Shemesh, D., Eden, S., & Heiman, T. (May, 2010). *Youth violence and bullying in ICTs: Teachers awareness and coping.* Presented at the international conference on e-Youth: Balancing between Opportunities and Risks. http://www.ua.ac.be/eyouth. Antwerp, Belgium.

Heiman, T., Eden, S., & Olenik-Shemesh, D., (February, 2010). *Cyber Bullying: Teachers Perceptions and Coping.* In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (p. 208). Ra'anana, Israel: The Open University of Israel.

Tuvi-Arad, I. (August, 2010). *Visualization of molecular symmetry – Web-based learning of advanced chemistry*. 21st International Conference on Chemical Education, Taipei, Taiwan.

Tuvi-Arad, I., & Blonder, R. (2010). *Continuous symmetry & chemistry teachers: Learning advanced chemistry content through novel visualization tools*. In Eshet-Alkalai, Y., Caspi, A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 87-93). Ra'anana, Israel: The Open University of Israel.

Wider, M., & Gorsky, P. (2010). Using computed simulation to overcome visual obstacles with 3D dynamic geometry software. In Eshet-Alkalai, Y., Caspi,

A., Eden, S., Geri, N., & Yair, Y. (Eds.), Proceedings of Chais Conference on Instructional Technologies Research: Learning in the Technological Era (pp. 81-93). Ra'anana, Israel: The Open University of Israel.

5. Research projects

Are online deceivers more attractive?

Researcher: Caspi, A.

In this study, gender differences in changing self-presentation were examined. Participants were asked to create a profile that truly presents them, and then to create a modified profile that aimed to present them more favorably. In the next stage of this study, different participants rated the attractiveness of both profiles. Results revealed that attractive profile are rated to be indeed more attractive. In depth examinations aimed to expose the factors that cause this result.

Media Choice for Intra-Organizational Communication: The Role of Environment, User, and Medium

Researchers: Caspi, A. & Blau, I.

The influence of media richness, media attentional load, social influence and users' prior experience with media on selection of media to transmit different messages to peers within an educational organization was tested. Support was found for the role of prior experience and social influence in media choice. The influence of media richness was small and there was no impact of media attentional load.

Psychological ownership, mode of learning and types of collaboration

Researchers: Caspi, A. & Blau, I.

The effect of two types of collaboration and mode of learning on psychological ownership was examined. Participants edited or commented on a peer's draft, which was written alone or in group of three collaborators. Perceived ownership decreased after the review process, and then increased back to the initial level after revising the paper. Participants that worked individually had higher sense of ownership than participants that worked in group. After text editing participants "lost" sense of ownership toward their text, whereas after commenting a text the sense of ownership remained unchanged.

Seeking help from classmates for dealing with difficult homework assignments: the impact of age, gender and media choice
Researchers: Caspi, A. & Gorsky, P.

This study tests the peer-directed, help-seeking behavior of 1,032 school-age students (fifth to twelfth grades) as they coped with difficult mathematics homework. Cross-sectional data revealed the influence of age, gender and media choice on help-seeking from peers.

The influence of navigation in virtual environment on induction skills
Researchers: Eden, S. & Eshet-Alkalai, Y.

This research explores the connection between virtual reality technology and human cognition. The research aim is to investigate the influence of navigation under specific rules, in 3D environments, on the structural inductive abilities in mental cognitive maps.

The influence of oral language of deaf and hard-of-hearing children on sequential time perception
Researchers: Eden, S. & Ingber, S.

The study examines the cognitive and the lingual aspects of hearing impairments, and investigates the influence of aural language of deaf and hard of hearing children on time sequence with technological representation vs. non-technological representation.

Laptop usage and its influence on emotional aspects among children with learning disabilities
Researchers: Eden, S., Freshtman, M. & Shamir, A.

The current study examined the effect of using laptops on the spelling capabilities of students in special education classes. The study was conducted as part of the Katom Project (The Davidson Institute for Scientific Education). Ninety three students with learning disabilities participated in this study aged 13-Based on existing academic literature, we asked two research questions:

1) Do the results for the experimental group would show significant differences in the amount of spelling mistakes between the two spelling tests (pre/post)? 2) Will differences be found between the two research groups in regards to the gaps between the tests results?

The relationship between academic discipline and dialogic behavior in campus-based university course forums
Researchers: Gorsky, P., Caspi, A. & Blau, I.
This study investigates the dialogic behavior in campus-based university course forums. 10 forums from humanities courses and 10 forums from science courses will undergo protocol analysis based on the "Community of Inquiry" model. Similarities and differences will be searched for.

Quantitative content analysis: The relationship between different syntactic units
Researchers: Gorsky, P., Caspi, A. & Blau, I.
This study compares outputs from 16 asynchronous course forums. Each forum was analyzed twice, first using the message as the basic analytic unit and a second time using the sentence as the basic unit. Similarities and differences will be searched for.

The relationship between dialogic behavior for obligatory and non-obligatory participation in Open University course forums
Researchers: Gorsky, P., Caspi, A. & Blau, I.
This study investigates the dialogic behavior in 3 Open University course forums wherein student participation was obligatory. Similarities and differences will be searched for between these forums and forums where participation is non-obligatory

Toward a population parameter for "Communities of Inquiry" in higher education, asynchronous course forums

Researchers: Gorsky, P., Caspi, A. & Blau, I.

In the research described above, certain similarities common to all higher education course forums have been identified. Specifically, a constant value for "social presence" that seems to transcend institution type, academic discipline, course size, and academic level has been found.

Characteristics of Cyber-bullying among adolescents, and its implications on social-emotional aspects

Researchers: Heiman, T., Olnik-Shemesh, D., & Eden, S.

The aim of the study is to examine characteristics of Cyber-bullying among adolescents, with and without learning disabilities, as well as its implications on social and emotional aspects.

Using computed simulation to overcome visual obstacles with 3D dynamic geometry software

Researchers: Wider, M., & Gorsky, P.

We studied how high school students use 3D dynamic geometry software to overcome visual obstacles and solve problems. We found that individuals, possessing either relatively high or low spatial abilities, used the software tools in different ways in order to overcome visual barriers, thereby minimizing cognitive load and maximizing learning.

Caught in the Net – The Influence of Social Network Sites on Social Identification with Informal Education Program

Researchers: Shilo, R., & Caspi, A.

This study tested the influence of Social Network Site (e.g., Facebook) usage on social identification with informal education program. It was suggested that by using social network, the in-group identification becomes more central for the individual, regarding the educational program and the immediate group

members. 607 participants of an after school educational youth program answered a questionnaire. The results confirmed that utilizing social network sites increased social identification.