# Digital Games and Digital Media for Learning research group

http://www.media.uoa.gr/~gouscos/digitalmedia4learning

The Digital Games and Digital Media for Learning research group of the Laboratory of New Technologies in Communication, Education and the Mass Media, Faculty of Communication and Media Studies, University of Athens, focuses on the potential of new digital media (digital games, social media, digital storytelling, pervasive applications) to operate as frameworks for formal, informal, life-long and intergenerational learning. The group has developed collaborations with research groups in Greece and abroad such as the Learning Technology and Educational Engineering Laboratory (University of the Aegean), the Cultural and Educational Technology Institute (Athena Research Center), the Poisson Rouge project (Interactica), the Game Experience Lab (Eindhoven University of Technology).

The Digital Games and Digital Media for Learning research group is co-ordinated by Professor Michalis Meimaris, Director of the Laboratory of New Technologies in Communication, Education and the Mass Media and Director of the University Research Institute of Applied Communication and Assistant Professor Dimitris Gouscos, Faculty of Communication and Media Studies, University of Athens. The group comprises doctoral and postgraduate researchers including Sotiris Kirginas, Panagiotis Tragazikis, Alexandra Nakou, Ioanna Tsiavou, Chara Mavroudi, Eni Meliadou, Marina Tomara, Evgenia Siampanopoulou, Tatiana Michailidou, Christina Tatsi, Menia Mavraki, Katerina Fragkiskou, Marianna Poutakidou, Irini Chaidi, Loukas Koutsikos, Lia Mouchtari, Manolis Spanoudakis as well as affiliated researchers from other faculties.

## selected research and education activities

### ecoKtima, a new contract for experience and learning

http://www.ecoktima.com

The ecoKtima project has been conceived by a team led by Maria Filippi, in the context of her studies in the Joint MEd on ICT for Education (http://www.icte.ecd.uoa.gr), under the supervision of Prof. Michalis Meimaris and Assistant Prof. Dimitris Gouscos. The ecoKtima project, which is physically based on a farm located in a rural area some 25km outside Athens, Greece, aspires to offer a new contract for experience and learning, overcoming two important dichotomies: the one between learning and play, and the one between natural and digital environments. The ecoKtima facilities have been constructed as a traditional farm, augmented with digital media (wi-fi access, web cameras, QR codes, mobile devices) that allow to design and deploy applications delivering a hybrid experience while interacting with the natural environment and digital media at the same time. These capabilities support deployment of pervasive playful experiences, based on combinations of handheld devices, locative applications, digital games and physical outdoors play, which can in turn support scenarios for learning while playing and playing while learning. On top of that, ecoKtima offers a number of capabilities such as adopting and cultivating a farmyard, which can support re-connecting with nature and the environment and re-discovering a natural course of life. The online presence of the ecoKtima project is accessible on http://www.ecoktima.com.

The NTLab Digital Games and Digital Media for Learning research group collaborates with the ecoKtima project team under a project contract with national and EU funding for a period of 13 months (November 2012 – November 2013) period and is responsible for the following tasks :

– selection and study of state of the art digital games pertinent to ecotourism, protection of the environment, renewable energy sources and sustainable consumption

– selection and study of state of the art hybrid and pervasive applications pertinent to the above themes

– proposal of a methodology for design and development of a hybrid pervasive application for playful learning

– design of this application at the level of storytelling, plot and gameplay

– evaluation of the implementation of this application (to be realized by an independent third party)

– dissemination of project results to scientific conferences and journals as well as in events for the general public.

## Mathisi 2.0 (Learning 2.0) – Awareness for exploiting On-line Tools and Communities for Education and Life-Long Learning

## Mathisi 2.0 plus (Learning 2.0 plus) – Innovative youth initiatives and good practices for exploiting On-line Tools and Communities for Education and Life-Long Learning

http://www.mathisi20.gr

The Mathisi 2.0 (Learning 2.0) and Mathisi 2.0 plus (Learning 2.0 plus) initiatives aspire to bring forward the ways in which networking of youngsters and adults, teachers, students and parents, can enhance education and life-long learning. The specific objectives of the Mathisi 2.0 and Mathisi 2.0 plus initiatives are (1) to contribute towards awareness of youngsters, school and university students and teachers, parents and everyone else with a shared interest in education about new online tools (Web 2.0 tools, social media) and the collaborative potential that they bring to education and life-long learning; (2) to bring into contact individuals and organizations interested in networked learning, with a view to reinforcing their dialogue and cooperation; and (3) to promote initiatives actively undertaken by young people for exploitation and innovative uses of online tools and digital media for education and life-long learning and, through these initiatives, to high-light good practices. To this end, the following activities have been implemented:

– Development of web presence and information content on the http://www.mathisi20.gr website, as well as on online social media (wordpress, facebook, twitter, youtube) with approx. 2,000 unique visitors and 6,000 pageviews per month, plus more than 900 facebook fans.

– Implementation of two information days (Athens, June 2011 and June 2012) which have been broadcast online through live streaming and live tweeting and attracted an audience totaling more than 1,000 participants physically and online.

– Production of two white papers (Mathisi 2.0 white paper on July 2011, Mathisi 2.0 plus white paper on September 2012, both in Greek) for international advancements, good practices in Greece as well as open issues with respect to the exploitation of online digital media for education and life-long learning.

– Production of a series of videos with position statements of experts and lay people actively involved in the application of online digital media to education and life-long learning.

– Deployment of an online accessible database cataloguing people in Greece and abroad actively involved in networked learning (more than 300 entries).

– Open call for submission of innovative initiatives and good practices for exploiting networked digital media in education and life-long learning in Greece, and award of a good digital practice seal to 20 such initiatives implemented by teams of researchers, teachers and students from all over Greece at all levels of education (June 2012).

– Realization, for the first time in Greece, of a public debate with initial premise "social media are not dangerous for teenagers", which was organized in collaboration with Intelligence Squared Greece (IQ2), an experienced journalist as debate coordinator and parents, teachers and teenager students as discussants in favor of and against the initial premise (June 2012).

The Mathisi 2.0 and Mathisi 2.0 plus initiatives have been implemented during 2011-2012 (Mathisi 2.0 initiative: January – July 2011, Mathisi 2.0 plus initiative: April – September 2013) by the University Research Institute of Applied Communication (URIAC) of the Faculty of Communication and Media Studies of the University of Athens, through funding by the Foundation for Youth and Life-Long Learning – National Agency and the General Secretariat for Youth, in the context of the 'Youth in Action' Programme of the European Commission.


## Milia (Appletree), a storytelling platform

http://www.media.uoa.gr/medialab/milia/

This research project is focused on deploying Milia (Appletree), an open platform for social interactive digital storytelling. The Milia platform aims to support the representation, presentation and collaborative creation of any sort of stories in digital format. Applications of the platform can be found in storytelling per se, in education, in publishing and, more generally, in the publication of collaborative digital works. The Milia platform is freely accessible online at http://www.media.uoa.gr/medialab/milia/. The Milia digital storytelling platform has received, in October 2011, the Euromedia Seal of Approval award of Erasmus Euromedia Awards 2011.


## Ilektrodomatio (Electroroom) - an interactive game for learning about electricity

http://users.sch.gr/mtomara/ilektrodwmatio.html

The Ilektrodomatio (Electroroom) game for learning has been developed by Panagiota-Marina Tomara, MSc, MEd, in the context of her Master's thesis in the Joint MEd on ICT for Education (http://www.icte.ecd.uoa.gr), under the supervision of Assistant Prof. Dimitris Gouscos and Prof. Michalis Meimaris. The Ilektrodomatio game results from an effort to

implement a realistic interactive environment that simulates a real-world laboratory of electric circuits. The game is designed according to a discovery-based approach to knowledge, and incorporates features resulting from constructionist theories for learning. Its prime objective is to encourage learning through entertainment, and to this end it includes a large number of experiments, involving everyday life objects and appliances rather than laboratory-style experiments. The game is freely accessible on webpage http://users.sch.gr/mtomara/ilektrodwmatio.html and has attracted more than 2,000 visitors as of March 2013.

### LO, a digital game for the water cycle

The LO game for learning has been developed by Xaris Mavroudi, MEd, in the context of her Master's thesis in the Joint MEd on ICT for Education (http://www.icte.ecd.uoa.gr), under the supervision of Assistant Prof. Dimitris Gouscos and Prof. Michalis Meimaris. Lo is a digital game for learning intended to familiarize preschool and early primary school pupils with the water cycle. Conception and design of the game has been based on presumptive learning theory, with the objective to arouse the curiosity of children and challenge their ability to connect different forms of water with their everyday life experience, and thus arrive at conceptualizing the entire water cycle. The game's online version is currently under development.

### Magiko Filtro (Magic Potion) - an adventure game for learning

http://www.media.uoa.gr/epinoisi

Magiko Filtro (Magic Potion) is an adventure-style game for learning that was developed for primary and secondary education students with mild intellectual disability during Nov 2007 – Nov 2008 within the EPINOISI project (Project Leader Prof. M. Meimaris, Co-ordinator Assist. Prof. D. Gouscos), by the Laboratory of New Technologies in Communication, Education and the Mass Media of the Univ. of Athens. The Magiko Filtro design and development team included about 15 researchers from disciplines such as interactive applications, animation and graphics design, special and primary education and communication studies. In June 2009, the Magiko Filtro game was awarded the Comenius Edumedia Medal. The Magiko Filtro game is available for free download (in greek, partners sought for translation) at http://www.media.uoa.gr/epinoisi/tmf/tmf20.rar.

### EPINOISI R&D Project - Specialised Formation of General and Special Education Teachers and Production of Digital Game-Based Educational Material for Mild Intellectual Disability

http://www.media.uoa.gr/epinoisi

The EPINOISI R&D project has been implemented by the Laboratory of New Technologies in Communication, Education and the Mass Media of the Faculty of Communication and Mass Media Studies of the University of Athens and funded by the Greek Operational Programme for Education and Initial Vocational Training 2000-2006 (EPEAEK II) during November 2007 – November 2008, with the objective to realize a specialized formation program for

primary, secondary and special education teachers supporting students with mild intellectual disability (MID) and at the same time develop digital games-based learning (DGBL) material for MID students to be deployed and tested within the special classroom, as part of practical seminars and hands-on activities. Prof. Michalis Meimaris, Director of UoA NTLab, has contributed as scientifically responsible and Assistant Prof. Dimitris Gouscos as co-ordinator for the EPINOISI project.

The total duration of the EPINOISI formation program on DGBL for MID has extended to 400 teaching hours, of which 100 hours were allocated to seminars of theoretical formation and 300 hours to practical hands-on seminars, presentation of digital game-based educational material and supervised application of this material in the special classroom. Theoretical formation seminars have been realized during May – June 2008, whereas practical activities and supervised classroom application of digital game-based learning material took place during September – November 2008. The 200 teachers that attended this formation program have been selected from schools and cities from all over Greece and grouped in 20 formation classes located in 15 cities all over the country.

The Magic Potion is a digital adventure game for learning which has been developed in Greek by the EPINOISI project and covers language, mathematics, social and communication skills for students with mild intellectual disability. The Magic Potion game, together with accompanying material, is freely available from the EPINOISI project website to all project participants, as well as to all third persons interested in this application.

## postgraduate courses on Learning and Entertainment in a Digital Environment and Deployment of Digital Applications

The Digital Games and Digital Media for Learning research group offers teaching support for the postgraduate courses on Learning and Entertainment in a Digital Environment and Deployment of Digital Applications of the Joint Master's Programme on ICT for Education (http://www.icte.ecd.uoa.gr).

The Learning and Entertainment in a Digital Environment course is focused on presenting theoretical background, methodology principles and technological tools for learning through digital gameplay, with emphasis on the use of games with a learning purpose as well as general-purpose commercial games; focus is placed on digital games-based learning and digital games-based teaching, for topics of the formal education curriculum as well as extra-curricular learning objectives.

The Deployment of Digital Applications course is focused on presenting theoretical background, methodology principles and technical tools for learning through playful interaction with digital media, with emphasis on the use of social media, social games, digital toy libraries, locative media, digital storytelling and intergenerational communication; focus is placed on topics of the formal education curriculum as well as extra-curricular learning objectives.

### translation and scientific editing of the book "Digital Games-Based Learning"

Greek translation (scientific editing M. Meimaris) of the book "Digital Games-Based Learning" by Marc Prensky (http://www.marcprensky.com), Metaixmio Publications (Athens, 2009).

### colloquium on "Play, Storytelling, Technology – in quest of the digital counterpart of human consolation"

The colloquium on "Play, Storytelling, Technology – in quest of the digital counterpart of human consolation" (Athens, June 2010) has been co-organized by the University Research Institute of Applied Communication and the Laboratory of New Technologies in Communication, Education and the Mass Media, Faculty of Communication and Media Studies, University of Athens. More than 15 invited speakers participated in the colloquium's workprogramme.

### international scientific conference ECGBL 2011 - 5th European Conference on Games-Based Learning and satellite events

www.academic-conferences.org/ecgbl/ecgbl2011/ecgbl11-home.htm

the 5th European Conference on Games-Based Learning (ECGBL 2011), which constitutes a central event in Europe, and one of the major events world-wide, for the scientific community of digital games-based learning, was organized in Athens, in October 2011, by the Laboratory of New Technologies in Communication, Education and the Mass Media, with the support of the University Research Institute of Applied Communication, Faculty of Communication and Media Studies, University of Athens and in collaboration with the Hellenic-American Union. The Laboratory of New Technologies in Communication, Education and the Mass Media organized, in collaboration with the above institutions, an additional series of satellite events to the main ECGBL conference, including the digital games for learning exhibition Serious Games Showcase & Best Practices (SGS-Best 2011), the digital media for learning exhibition Playful Learning Media (PlayLearn 2011), and a vocational specialization seminar on "Learning Based on Play, Storytelling and Technology" which, together with the main conference, attracted an audience totalling more than 400 participants with an active interest in the exploitation of digital games in learning processes.

## selected publications

### book chapters, peer-reviewed

– Dimitra Florou & Dimitris Gouscos, "Social media-based communities of practice for education in citizenship and sustainability", in *Public Sector Reform Using Information Technologies: Transforming Policy into Practice*, Thanos Papadopoulos & Panagiotis Kanellis (eds), IGI Global, 2011, online available at http://www.igi-global.com/chapter/social-media-based-communities-practice/56390.

– Maria Saridaki, Dimitris Gouscos and Michalis Meimaris, "Digital Games-Based Learning for Students with Intellectual Disability", in *Games-Based Learning*

*Advancements for Multi-Sensory Human Computer Interfaces: Techniques and Effective Practices*, Thomas Connolly, Mark Stansfield and Liz Boyle (eds), Information Science Reference Publishers, UK, 2009, ISBN 978-1-60566-360-9, pp.304-325.

## book chapters, by invitation

– (in Greek) Alexandra Nakou, Dimitris Gouscos and Michalis Meimaris, "Educational approaches and practical capabilities for exploiting social media in learning processes", Crisis and Governance of Educational Systems – Fourth International Colloquium on Educational Design, Rhodes Island, Greece, May 2011.

– (in Greek) Michalis Meimaris and Dimitris Gouscos, "The Game of Learning: Educational Processes with the help of Digital Games", Change and Governance of Educational Systems – Second International Colloquium on Educational Design, Rhodes Island, Greece, May 2009.

## journal papers, peer-reviewed

– Panagiotis Tragazikis, Sotiris Kirginas & Dimitris Gouscos, "Digital games for entrepreneurial learning, innovation and creativity: examples and evaluation criteria", Special Issue on "Innovative Entrepreneurship: Sources of Innovation, Policies and Learning", A. Kakouris & P. Ketikidis (guest editors), International Journal of Innovation and Regional Development  (IJIRD), Vol.4, No.3/4, 2012, pp. 314-337, online available at http://www.inderscience.com/info/inarticle.php?artid=47564.

## conference papers, peer-reviewed

– Gouscos, D. and Meimaris, M. (2013) "Milia (AppleTree), an open platform for social interactive digital storytelling". In CREATE, ACT, CHANGE: 5th International Digital Storytelling Conference and Exhibition (DST2013), Hacettepe University, Ankara, Turkey, May 2013.

– Mouchtari, E., Meimaris, M., Gouscos, D., Sfyroera, M. (2013) "Learning and intergenerational communication through digital storytelling in the first grades of primary school: Yesteryear Jobs". In CREATE, ACT, CHANGE: 5th International Digital Storytelling Conference and Exhibition (DST2013), Hacettepe University, Ankara, Turkey, May 2013.

– (in Greek) Mavraki, M, Seresli, A., Fragkiskou, K., Gouscos, D. and Meimaris, M. (2013) "Educational Intervention through the Go Recycle Digital Game for Students with Autism". In the 7th Conference of Teachers for ICT – Exploiting Information and Communication Technologies in Educational Practice, Syros Island, Greece, 17-18-19 May 2013.

– (in Greek) Marinou, D., Siampanopoulou, E., Tatsi, C., Filippi, M., Gouscos, D. and Meimaris, M. (2013) "Icefiddler and the Snow Orchestra – Application of a Pervasive Digital Game in Preschool Pupils". In the 7th Conference of Teachers for ICT – Exploiting Information and Communication Technologies in Educational Practice,

Syros Island, Greece, 17-18-19 May 2013.

– Koutsikos, L., Manthou, A., Mitilinaiou, A., Mouchtari, E., Simotas, K., Troullou, E., Tsampa, K., Gouscos, D. and Meimaris, M. (2012) "Music for two generations: Intergenerational Intervention Through Music and Internet Technologies". In Open Learning Generations - Closing the gap from "Generation Y" to the mature Lifelong Learners, EDEN 2012 Annual Conference, Porto, Portugal, 6-9 June 2012.

– Meliadou, E., Nakou, A., Haidi, I., Koutsikos, L., Giannakoulopoulos, A., Gouscos, D. and Meimaris, M. "Technology in intergenerational learning research projects in the Greek context". In 3rd International Conference on Elderly and New Technologies (3ICENT), Castellón, Spain, 18-20 April 2012.

– Meliadou, E., Nakou, A., Gouscos, D. and Meimaris, M. "Digital Storytelling, Learning and Education". In 6th International Conference in Open & Distance Learning, Loutraki, Greece, November 2011.

– Panagiotis Tragazikis, Sotiris Kirginas, Dimitris Gouscos & Michalis Meimaris, "Digital games evaluation and educational assessment - a review and proposal for an open methodological framework (OMEGA)", 5th European Conference on Games-Based Learning, Athens, Greece, October 2011.