# E-learning

Vol. 8

# E-learning Methodology – Implementation and Evaluation

# University of Silesia in Katowice, Faculty of Ethnology and Sciences of Education in Cieszyn

# E-learning

Vol. 8

# E-learning Methodology – Implementation and Evaluation

Monograph

Scientific editor

Eugenia Smyrnova-Trybulska

Katowice - Cieszyn 2016

### Scientific Programme Committee

Xabier Basogain – University of the Basque Country, Spain, Filipe Carrera – Lisbon University, Portugal, Sixto Cubo – University of Extremadura, Spain, Martin Drlik – Constantine the Philosopher University in Nitra, Slovak Republic, Prudencia Gutiérrez Esteban – University of Extremadura, Spain, Franz Feiner – Catholic University College for Education, Graz, Austria, Zenon Gajdzica – University of Silesia in Katowice, Poland, Pedro Iasias, Queensland University, Brisbane, Australia, Tomayess Issa – Curtin University in Perth, Australia, Jana Kapounová – University of Ostrava, Czech Republic, Piet Kommers – University of Twente, The Netherlands, Kateřina Kostolányová – University of Ostrava, Czech Republic, Josef Malach – University of Ostrava, Czech Republic, Elspeth McKay – Royal Melbourne Institute of Technology, Australia, Natalia Morze – Borys Grinchenko Kyiv University, Ukraine, Tatiana Noskova – Herzen State Pedagogical University of Russia, St.Petersburg, António dos Reis – The Graal Institute, Portugal, Kazimierz Wenta – Higher School of Humanities in Szczecin, Poland, Halina Widła – University of Silesia in Katowice, Poland, Zygmunt Wróbel – University of Silesia in Katowice, Poland, Miroslav Zhaldak – Dragomanov National Pedagogical University in Kyiv, Ukraine

#### **Editorial Board**

Theodora Issa – Curtin University in Perth, Australia, Miroslav Hrubý – University of Defence, Czech Republic, Milena Janáková – Silesian University in Opava, Czech Republic, Rusudan Makhachashvili – Borys Grinchenko Kyiv University, Ukraine, Ewa Ogrodzka-Mazur – University of Silesia in Katowice, Poland, Tatiana Pavlova – Herzen State Pedagogical University of Russia, St.Petersburg, Paulo Pinto – The Lisbon Lusiada Uiversity, Portugal, Magdalena Roszak – Poznan University of Medical Sciences, Poland, David Richardson – Leaneus University, Sweden, Halina Rusek – University of Silesia in Katowice, Poland, Nuria Salvador – 22 Century Fundation – Spain, Iryna Sekret – Abant Izzet Baysal University, Bolu, Turkey, Eugenia Smyrnova-Trybulska – University of Silesia in Katowice, Poland, Aleksander Sadovoy – Dniprodzerzhinsk State Technical University, Ukraine, Jana Šarmanová – TU-VSB, Ostrava, Czech Republic, Anna Szafrańska-Gajdzica – University of Silesia in Katowice, Poland, Milan Turčáni – Constantine the Philosopher University in Nitra, Slovak Republic, Max Ugaz – University of S. Martin de Porres, Peru, Dominik Vymětal – Silesian University in Opava, Czech Republic

#### Reviewers

Laura Alonso-Díaz – University of Extramadure, Spain, Sixto Cubo – University of Extramadure, Spain, Martin Drlik – Constantine the Philosopher University in Nitra, Slovakia, Prudencia Gutiérrez Esteban – University of Extramadure, Spain, Franz Feiner – Catholic University College for Education, Graz, Austria, Miroslav Hrubý – University of Defence, Czech Republic, Theodora Issa – Curtin University in Perth, Australia, Barbara Kolodziejczak – Poznan University of Medical Sciences, Poland, Wojciech Kowalewski – Adam Mickiewicz University, Poland, Anna Ren-Kurc – Adam Mickiewicz University, Poland, Piotr Leszczyński – Siedlce University of Natural Sciences and Humanities, Poland, Rusudan Makhachashvili – Borys Grinchenko Kyiv University, Ukraine, Tatiana Pavlova – Herzen State Pedagogical University of Russia, St.Petersburg, Marek Rembierz – University of Silesia in Katowice, Poland, Maryna Romanyukha – Dniprodzerzhinsk State Technical University in Opava, Czech Republic, Oxana Strutinska – Dragomanov National Pedagogical University in Kyiv, Ukraine, Halina Widła – University of Silesia in Katowice, Poland, Olga Yakovleva – Herzen State Pedagogical University of Russia, St.Petersburg, Lucie Zormanová – Jan Ámos Komenský University Prague, Czech Republic

Technical editing and proofreading by: Andrzej Szczurek, Ryszard Kalamarz

Cover design by: Ireneusz Olsza

© Copyright by University of Silesia in Katowice, Poland, 2016

ISSN: 2451-3644 (print edition) ISSN 2451-3652 (digital edition) ISBN 978-83-60071-86-1

Published by: Studio NOA for University of Silesia in Katowice Faculty of Ethnology and Sciences of Education in Cieszyn

Printed in Poland

Scientific publication co-financed by funds for scientific research in the years 2014–2017 granted by the Ministry of Science and Higher Education for the implementation of the co-financed international project IRNet and from statutory funds for research.

The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement No 612536.

# **TABLE OF CONTENTS**

INTRODUCTION	9
Chapter I. EUROPEAN AND NATIONAL STANDARDS OF E-LEARNING QUALITY EVALUATION	13
Piet Kommers (The Netherlands)  EDUCATION, CULTURE AND TECHNOLOGY: TRIANGLE FOR  DEVELOPING HIGHER EDUCATION	13
Lucie Zormanová (Czech Republic)  DISTANCE EDUCATION IN EUROPEAN COUNTRIES	19
Franz Feiner (Austria) PHILOSOPHIZING WITH CHILDREN USING OPEN EDUCATIONAL RESOURCES (OER)	29
Eugenia Smyrnova-Trybulska (Poland) E-LEARNING AND OPEN EDUCATION QUALITY – SOME EUROPEAN AND NATIONAL STANDARDS AND REGULATION	51
Kseniia Yashyna, Oksana Karpenko, Valerii Zavgorodnii, Oleksandr Sadovoy, Kateryna Yalova, Oleksandr Krupnyk (Ukraine) DSTU AND KSMA KNOWLEDGE TRANSFER SYSTEMS	73
Chapter II. THEORETICAL AND METHODOLOGICAL ASPECTS OF DISTANCE LEARNING	91
Tatiana Noskova, Tatiana Pavlova, Olga Yakovleva (Russian Federation) SOCIAL MEDIA FOR SHAPING PROFESSIONAL EXPERIENCE OF MASTER DEGREE STUDENTS	91
Anna Ślósarz (Poland) DISTANCE EDUCATION RESEARCH FIELDS AND METHODS	103
Iryna Vakulenko (Ukraine) MANAGEMENT OF STUDENTS' INDIVIDUAL WORK UNDER THE DISTANCE LEARNING CONDITIONS	125

6 Table of Contents

Laura Alonso-Díaz, Prudencia Gutiérrez-Esteban, Gemma Delicado-Puerto, Rocío Yuste-Tosina, Sixto Cubo Delgado, Juan Arias-Masa (Spain) E-PORTFOLIO: OPEN EDUCATIONAL RESOURCES FOR A NEW LEARNING CULTURE	143
Nadiia Balyk, Galina Shmyger (Ukraine) THE STUDY AND THE USE OF THE COMBINATION OF ICT TOOLS OF E-COMMUNICATION AT THE PEDAGOGICAL UNIVERSITY	157
Magdalena Roszak, Barbara Kołodziejczak, Wojciech Kowalewski, Anna Ren-Kurc, Piotr Leszczyński, Andrzej Bręborowicz (Poland) E-LEARNING IN MEDICAL EDUCATION – IMPLEMENTATION	173
Manuel Traver, Juan Arias (Spain) PEER-ASSESSMENT IN HIGHER EDUCATION	187
Nataliia Morze, Hanna Pavlova, Rusudan Makhahchashvili (Ukraine), Eugenia Smyrnova-Trybulska (Poland) TEACHER-STUDENT COLLABORATION: CHALLENGES AND	
OPPORTUNITIES	195
Danuta Morańska (Poland) ACADEMIC E-LEARNING DILEMMAS	209
Chapter III. E-LEARNING IN THE DEVELOPMENT OF THE KEY COMPETENCES	221
Oksana Shelomovska, Liudmila Sorokina, Maryna Romaniukha, Kostyantyn Bohomaz, Mykola Nakaznyi (Ukraine) ICT-COMPETENCE OF UNIVERSITY TEACHERS IN	
PROFESSIONAL DEVELOPMENT AND SCIENTIFIC ACTIVITY	221
Barbara Kołodziejczak, Magdalena Roszak, Anna Ren-Kurc, Wojciech Kowalewski, Andrzej Bręborowicz (Poland) E-ASSESSMENT IN MEDICAL EDUCATION	235
Miroslav Hrubý (Czech Republic) FOREIGN LANGUAGE COMPETENCE SUPPORTED BY ICT AND DISTANCE LEARNING	251

Table of Contents 7

Sixto Cubo Delgado, Laura Alonso Díaz, Gemma Delicado Puerto, Juan Arias Masa, Prudencia Gutiérrez Esteban, Rocío Yuste Tosina (Spain)  EVALUATION OF THE IMPLEMENTATION OF ICT IN THE PROFESSIONAL TEACHING AND RESEARCH DEVELOPMENT OF UNIVERSITY FACULTY	261
Vasyl Yefymenko, Tetiana Yefymenko (Ukraine)  DEVELOPMENT OF INFORMATICS COMPETENCES OF  COMPUTER SCIENCE TEACHERS DURING THE TRAINING  COURSE "COMPUTER GRAPHICS"	273
Irena Pulak (Poland) THE LEVEL OF INDIVIDUALIZATION AS A ONE OF QUALITY DIMENSIONS OF E-LEARNING	287
Chapter IV. DISTANCE LEARNING AND LIFELONG LEARNING. E-LEARNING FOR SOCIETAL NEEDS	297
Oksana Strutynska, Mariia Umryk (Ukraine) THE USE OF MOOCS FOR TRAINING OF THE FUTURE COMPUTER SCIENCE TEACHERS IN UKRAINE	297
Eugenia Smyrnova-Trybulska, (Poland), Nataliia Morze (Ukraine), Wojciech Zuziak (Poland), Mariia Gladun (Ukraine) ROBOTS IN ELEMENTARY SCHOOL: SOME EDUCATIONAL, LEGAL AND TECHNICAL ASPECTS	321
Vojtěch Gybas, Libor Klubal, Kateřina Kostolányová (Czech Republic) INDIVIDUALIZED TEACHING PROCESS FOR PUPILS WITH MODERATE MENTAL DISABILITY	343
Chapter V. E-LEARNING – GOOD PRACTICE OF EFFECTIVE USE IN EDUCATION	353
Nataliia Morze, Rusudan Makhachashvili, Oleksyi Zhyltsov (Ukraine)	
COLLABORATION IN RESEARCH ACTIVITIES: ICT TOOLS ASSESSMENT	353
Mariusz Marczak, Jarosław Krajka (Poland) TRANSLATOR EDUCATION IN THE CLOUD: STUDENTS' PERCEPTIONS OF TELECOLLABORATIVE EXPERIENCES	369

8 Table of Contents

Iwona Mokwa-Tarnowska (Poland)	
ENSURING QUALITY IN THE CLASSROOM: EVALUATING	
TECHNOLOGY ENHANCED LEARNING	389
Olana H1.'-1. V.1	
Olena Hrybiuk, Valentyna Yunchik (Ukraine)	
INTEGRATION OF RESEARCH PROBLEMS SOLUTION	
THEORY WITH THE UTILIZATION OF COMPUTER ORIENTED	400
STUDY ENVIRONMENT	409
Małgorzata Bartoszewicz, Hanna Gulińska (Poland)	
POSSIBILITIES AND RESOURCES OF THE EPODRECZNIKI.PL	
PLATFORM FOR GENERAL EDUCATION USING THE	
EXAMPLE E-BOOK "WORLD THROUGH THE MAGNIFYING	425
GLASS, CHEMISTRY"	423
Sébastien Ducourtioux (Poland)	
CREATING AN E-LEARNING MODULE TO HELP LANGUAGE	
TEACHING: AN EXAMPLE OF DEVELOPMENT RESEARCH	441
TENEMINO, ANY EXECUTE EL OF BEVEEOF WENT RESERVED	
Oksana Buinytska (Ukraine)	
E-EDUCATION CONTENT MANAGEMENT	451
Małgorzata Bartoszewicz, Grzegorz Krzyśko (Poland)	
DISTANCE LEARNING IN EDUCATION – HOW TO DESIGN A	
FRONTER CHEMISTRY COURSE	467

#### INTRODUCTION

"Good quality education, provided by trained and supported teachers, is the right of all children, youth and adults, not the privilege of the few", stressed participants of World Educational Forum – 2015. Quality learning is not only essential for meeting people's basic needs, but is also fundamental in fostering the conditions for global peace and sustainable development. All young people need to learn in active, collaborative and self-directed ways in order to flourish and contribute to their communities. Along with the basics, they need to acquire attitudes, values and skills as well as information. Their teachers, peers, communities, curriculum and learning resources must help prepare them to recognize and respect human rights globally and to value global well-being, as well as equip them with the relevant skills and competencies for 21st century employment opportunities. To achieve this, it is not enough to measure what learners learn; it is essential to target the classroom experiences that fundamentally shape student learning, and emphasize the range of skills required lifelong well-being and societal for (http://en.unesco.org/world-education-forum-2015/5-key-themes/ quality-education)

The "new vision" of eLearning, based on educational aims and priorities, collaboration and community building, integration and partnership, with a strong innovation focus, may probably result more convincing. In Bergen the following elements were identified to be included in the "Bologna process" vision of eLearning: - the use of ICT facilitates dialogue and communication among students, and between teachers and students; - eLearning provides an "extended learning context" (more resources, more fellow students, more teachers) to all students; - eLearning brings some elements of flexibility in time and place, individualisation, and "ownership" of learning that encourage students to take an active role in managing their learning path; - eLearning may support international virtual mobility, international partnership among universities within and beyond Europe; - eLearning brings investment logics into the delivery of higher education, that may capitalise on the existing knowledge and know-how beyond the availability of individual teachers and researchers. (UNIOUe 2007)

The monograph "E-learning Methodology — Implementation and Evaluation" includes the best papers, prepared and presented by authors from nine European countries and from more than twenty universities during the scientific conference entitled "Theoretical and Practical Aspects of Distance Learning", subtitled: "E-learning Methodology — Implementation and Evaluation", which was held between 10-11 October 2016, organized by the Faculty of Ethnology and Sciences of Education in Cieszyn, University of Silesia in Katowice, Poland.

The speakers from the Open University in Lisbon (Portugal), University of Ostrava (Czech Republic), Extremadura University (Spain), Constantine the Philosopher University in Nitra (Slovakia), Curtin University in Perth (Australia), Catholic University College for Education, Graz (Austria), The Lisbon University (LU) (Portugal), Borys Grinchenko Kyiv University (BGKU), (Ukraine), Gdańsk

10 Introduction

Technical University (Poland), Herzen State Pedagogical University of Russia, St. Petersburg, (Russian Federation), Dniprodzerzhinsk State Technical University (DSTU), (Ukraine), Jagiellonian University (Poland), Warsaw University (Poland), Silesian University in Opava (Czech Republic), University of Silesia in Katowice (Poland), University of Defence in Brno (Czech Republic), Maria Curie-Skłodowska University in Lublin (Poland), Lublin University of Technology (Poland), Kazimierz Wielki University in Bydgoszcz (Poland), Jan Ámos Komenský University Prague, (Czech Republic), Cracow Pedagogical University (Poland), Lisbon Open University (Portugal), Centre for Innovation, Higher School of Economics in Katowice (Poland), University of Social Sciences and Humanities in Warsaw (Poland), Poznań University of Medical Sciences (Poland), Adam Mickiewicz University in Poznań, (Poland), University of Social Sciences and Humanities in Warsaw (Poland), Jesuit University of Philosophy and Education "Ignatianum" in Cracow (Poland), Dragomanov National Pedagogical University in Kyiv (Ukraine), Ternopil University (Ukraine) and other educational institutions presented a lectures with interesting study, own research results, discussed about further way of scientific work.

The authors include well-known scholars, young researchers, highly trained academic lecturers with long experience in the field of e-learning, PhD students, distance course developers, authors of multimedia teaching materials, designers of web-sites and educational sites.

I am convinced that the monograph will be an interesting and valuable publication, describing the theoretical, methodological and practical issues in the field of the use of e-learning for societal needs, offering proposals of solutions to certain important problems and showing the road to further work in this field, allowing for exchange of experiences of scholars from various universities from many European countries and other countries of the world.

This book includes a sequence of responses to numerous questions that have not been answered yet. The papers of the authors included in the monograph are an attempt at providing such answers. The aspects and problems discussed in the materials include the following:

## **E-learning Methodology – Implementation and Evaluation:**

- European and national standards of E-learning quality evaluation,
- Evaluation of synchronous and asynchronous teaching and learning, methodology and good example,
- MOOCs methodology of design, conducting, implementation and evaluation,
- Contemporary trends of world education globalization, internationalization, mobility

#### ICT Tools - effective use of education:

- Selected Web 2.0 and Web 3.0.,
- Massive Open Online Courses, etc.,

Introduction 11

- Social media.
- To compare and evaluate, LMS (learning management systems), CMS (Contents Management Systems),
- VSCR (Virtual synchronous classrooms), SSA (Screen Share Applications), CSA (Contents Sharing Application),
- Cloud computing environment,
- Multimedia resources and didactic materials,
- Video-tutorial design.

# **E-learning and Intercultural Competences Development in Different Countries:**

- Legal, social aspects of distance learning in different countries,
- Psychological and ethical aspects of distance learning in different countries,
- Teacher-student and student-student relationships in distance learning.

# Theoretical, methodological and practical aspects of distance learning:

- Theoretical and methodological aspects of distance learning,
- Successful examples of e-learning,
- Distance learning of humanities: native and foreign language, philosophy, history, etc.,
- Distance learning of science and mathematics,
- Quality of teaching, training programs and assessment
- E-learning for the disabled.

## Distance learning and lifelong learning:

- Computer training, for prospective and actual teachers, in distance learning,
- Lifelong learning supported by distance learning,
- Personnel, scientific, information and library services.
- E-learning in the Development of the Key Competences:
- Key competences in the knowledge society,
- Use of e-learning in improving the level of the students' key competences,
- Teachers' and learners' competences in distance learning and computer science.

### Other alternative methods, forms and techniques in distance learning:

- simulations, models in distance learning,
- collaboration work in distance learning,
- distance learning systems,
- m-learning.

Publishing this monograph is a good example of expanding and strengthening international cooperation. I am very grateful for valuable remarks and suggestions which contributed to the quality of the publication. Here I especially want to thank Andrzej Szczurek and Ryszard Kalamarz for their assistance in editing this publication. Also, I would like to say 'thank you' to the authors for the preparation and permission to publish their articles. I wish all readers a pleasant read. Thank you.