



Empowering Teachers with ICT Competencies

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Abstract

Educational systems around the world are under increasing pressure to use the new Information and Communication Technologies (ICT) to provide students the knowledge and skills they need in the 21st Century: “designing and implementing successful ICT-enabled teacher education programs is the key to fundamental, wide-ranging educational reforms”, [1].

This paper is aiming to presents the MA study program entitled “Information and Communication Technologies in Education”, designed and implemented by the Department for Distance Learning of the University of Bucharest. The acronym for this study program is “TICE”, in Romanian language. MA-TICE is implemented for pre-service teachers as on-campus, full-time program; the program is adapted also to the needs of in-service teachers as part-time on-campus program (in RO, “invatamant cu frecventa redusa, IFR”; in fact it is well known system of blended learning). What is important is: both program are accredited by ARACIS, the Romanian Agency for Quality Assurance in Higher Education. The main consequence of this accreditation, the IFR Diplomas are equivalent with diplomas obtained through the full-time on-campus program.

The official length of the program is 2 years (4 semesters) and 120 ECTS, in accordance with the Romanian rules regarding the master degrees. Besides general competencies, the program ensures some specific competencies as: (i) efficient use of the ICT tools for teaching, for designing learning resources and formative/summative assessments; (ii) for the management of classrooms and schools (as organizations); (iii) harnessing information technology for efficient computer professional and administrative activities and to ensure their quality etc.

The paper describes the TICE curriculum and the authors’ vision concerning the establishment of a transnational program, Double MA Degree.

1. Introduction

Our “adventure” to FOE2013 in Florence was initiated due to the conference’s objectives, clearly defined as: “the third edition of The Future of Education aims **to promote transnational cooperation and share good practice** in the field of innovation for Education. The conference is an excellent opportunity for the presentation of previous and current educational projects”. Yes, indeed, this article is aiming to present one of our good practice in teachers’ training /education: the MA study program named “TIC in Education (TICE)”, which in EN is “ICT in Education”. Currently, this program is running based on traditional ODL methodology, starting with 2005. Meanwhile, we noticed the trends of the educational market towards the very exciting MOOCs and transnational cooperation. That is why, we would like very much: (i) to move this MA study program from the “buildings with brick and mortar walls” to the “cloud”; (ii) to find valuable partners willing to further develop the existing MA study program and to rebuilt it as Joint Master Degree or Double Degree Master.

2. From the RO context to the EU context

2.1 RO context

The author is one of the founder of the DDLUB, the Department for Distance Learning within the University of Bucharest, Romania [2]. This department was established in 1999, through the University of Bucharest Senate’s Decision in order to design, implement and manage the distance learning study programs and lifelong learning programs (continuing education and professional conversion). Maybe, it is the right moment to clarify the terms. In EU and all over the world, you met the term “blended learning”; in RO, there are two types of study programs that have a lot of common characteristics with blended learning: (i) ID-“invatamant la distanta”; (ii) IFR-“invatamant cu frecventa redusa”. If someone read the ARACIS standards, [3], he can confirm that the previous assertion is a right one. The TICE program is accredited by ARACIS, the Romanian Agency for Quality Assurance in Higher Education. We really believe that TICE is blended learning.



TICE curriculum is targeted to the need of pre-service and in-service teachers. The official length of the programme is 2 years (4 semesters) and 120 ECTS, in accordance with the Romanian rules regarding the master degrees. Besides general competencies, the programme ensures some specific competencies as: (i) efficient use of the ICT tools for teaching, for designing learning resources and formative/summative assessments; (ii) for the management of classrooms and schools (as organizations); (iii) harnessing information technology for efficient computer professional and administrative activities and to ensure their quality etc.

The instruction process is adapted to the requirements for a modern education, within the schools of the 21st Century. That is why, the students are strongly encouraged to incorporate ICT in their current activity or in their personal training and professional development.

2.2 EU context

The Department for Distance Learning from the University of Bucharest, has been connected permanently with the European context. The authors are the main founder members of this department. Over the past 20 years, the author's concerns have been adapted to the EC strategies and initiatives in education. Nowadays, we are focused on: (i) Rethinking Education, [4]; (ii) Digital Agenda for Europe 2020, [5]. In order to better understand the "emergency" of these initiatives, some quotes from the Mrs. Androulla VASSILIOU (Member of the European Commission in charge of Education, Culture, Multilingualism and Youth) speech, given on the date 20/11/2012, focusing on the new "Rethinking Education" initiative are included in this article: "...why do we need to RETHINK education?"; "...youth unemployment is approaching 23% across Europe and at the same time we have over 2 million unfilled job vacancies"; "...the knowledge economy continues to increase demand for higher skills but more than 70 million Europeans have only low or no formal qualifications"; "...this highlights a serious weakness in our education and training systems". "We suggest that Member States focus reforms in three areas: quality, accessibility, and funding". We also highlight: "The Digital Agenda for Europe (DAE) aims to help Europe's citizens and businesses to get the most out of digital technologies. It is the first of seven flagships initiatives under Europe 2020, the EU's strategy to deliver smart sustainable and inclusive growth. Launched in May 2010, the DAE contains 101 actions, grouped around seven priority areas".

2.3 The UB's strategy to promote ICT in education

The University of Bucharest(UB) has taken into consideration the power of the ICT driving force that is able to change the way we live, work and learn. A three level strategy, Fig.1, was approved by the university's Senate, early in 2003. It was presented during EDEN Conference in Vienna, [6].

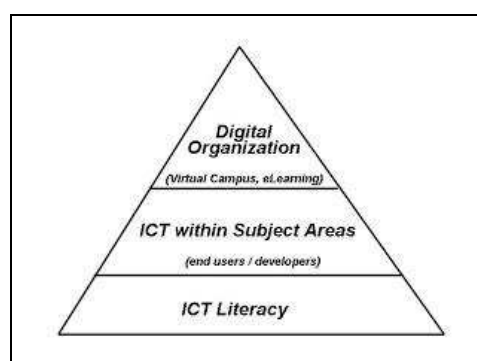


Figure 1. ICT strategy of the University of Bucharest

The research activity of the authors, focused on promoting ICT in teacher education was published in [7-12]. In order to reach the lower level of the strategy, "ICT Literacy", the ECDL [13,14] training resources were developed based on the eLearning technology. These courses were included in the new curricula built on the Bologna Process principles. In addition, the academic and the administrative staff were encouraged to obtain the ECDL certificates: Start and Standard. The intermediate level strategy, "ICT in subject areas", is dealing with the use of ICT in teaching/learning other subjects: mathematics, physics, biology etc. The third level of the strategy is focusing on the transformations produced through the use of ICT: people using eLearning courses are changing the way they learn;



the institution using a virtual campus (LMS, VLE etc.) takes the full potential of modern electronic platforms to support communication and collaboration between the members of the academic community (students, academic and administrative staff).

In the implementation of this strategy, we were helped by the EC funded projects like “i-Curriculum”: “...the project’s goal is to establish a European framework for defining information skills and a curriculum appropriate for living and learning in the digital age. Secondary objectives include: Identification of the key metaskills and metaknowledge needed for living in the digital age, Exploration of digital tools and artifacts and pedagogic practices that can lead to the development of broad digital literacy, Development of a framework for the description of curricula in terms of the Information/metaknowledge they encompass, Development of curriculum in information technology”, [15]. There were produced valuable outputs like guides for policy makers and teachers.

3. TICE Curriculum

ICT Literacy. The TICE Curriculum includes seven modules which are, in fact, ECDL curriculum: (1) Basic Concept of ICT; (2) Using the Computer and Managing the Files; (3) Word Processing; (4) Working with spreadsheets; (5) Working with Databases; (6) Composing Documents and Presentations; (7) Web Browsing and Communication. What we can highlight is: DDLUB has designed and implemented, starting with 2003, e-Learning training resources [14]. Even now, after 10 years, UB is the only one university in Romania providing the students this type of learning resources.

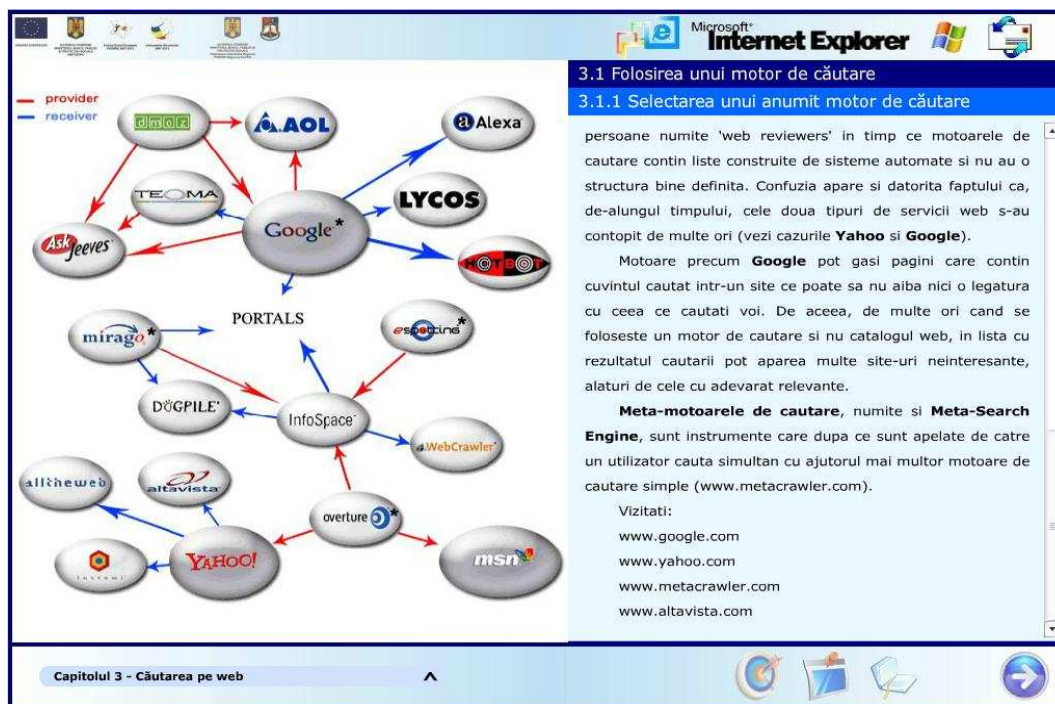


Figure 2. GUI for eLearning ECDL resources

The model used for these learning resources is presented in Fig.2, which is a screen capture from the course “Internet - Information and Communication”. The left side of the screen is allocated to pictures, animation or simulation. Students can control these applications, can run the simulations (as many times as they like) until they understand the “educational message”. The students are encouraged for immediate practice, “learning by doing”. The right side usually contains the text for self-study. The buttons allow the student to personalize the study, to go forward or backward, to jump to another paragraph or to another chapter of the course. Every course has also a self-evaluation service that provides the results of the evaluation just in time. The final evaluation for every module is similar with standard ECDL test. That is why, we strongly advise students to participate in official ECDL tests and to obtain the official ECDL Certificates which is recognized all over the Europe. Nowadays strategy is to implement these e-Learning resources on the powerful platform Google Course Builder, Fig.3.

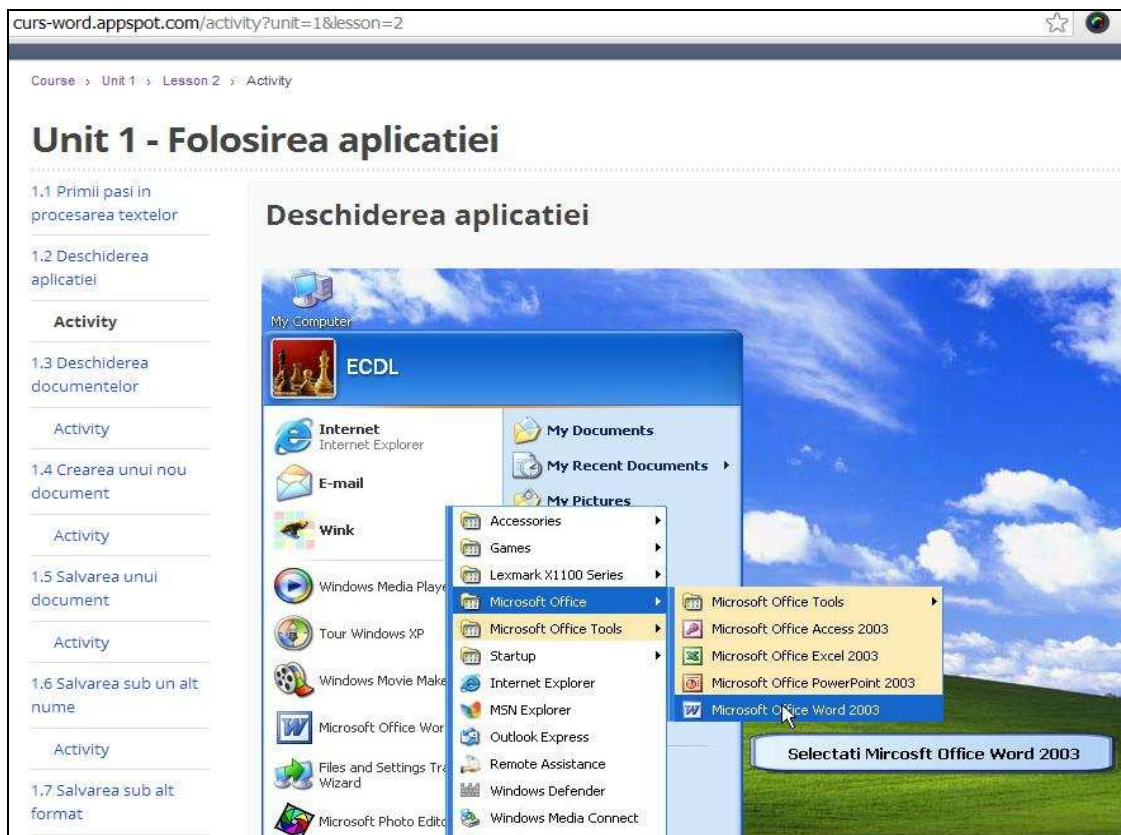


Figure 3. First ECDL eLearning resource implemented on Google Course Builder

ICT in subject areas. Another group of courses from TICE curriculum is focused on inserting ICT in subject areas, with proper pedagogy and methodology. This curriculum sequence is inspired from “i-Curriculum” [15]. The middle level in ICT Strategy, Fig.1, includes the following courses: “Computer Assisted Instruction”, “Didactics for ICT use in teaching and learning”

Digital educational organization. The highest level in ICT Strategy, Fig.1, includes some courses focusing on the use of modern digital technologies in education: “Multimedia applications for education”, “e-Learning”, “ICT in educational management”. In order to implement these concepts in their schools, the teachers are encouraged to use the opportunity of SaaS (Software as a Service); we highlight the fact that, most of the time, these services are free for education. A lot of digital tools are also available on Internet; the innovative teachers can use them free of charge.

TICE Curriculum includes courses belonging to the **Education Sciences** area: “Distance learning, alternative for education”, “Design, implementation and management of distance learning”, “Management of learning and change for 21st Century”, “European Project Management”, “Quality management in education”, “Practice”, “Research activity for Dissertation”.

4. Joint Master Degree or Double Degree?

Currently, the DDLUB runs the TICE study program in two scenarios: full-time on campus and part-time on campus (very close to blended learning). The students are: pre-service and in-service teachers. We are thinking that “ICT in Education” **can be considered on transnational level**. That is why, the authors are hoping to meet other colleagues who might be interested to collaborate with us in order to establish a Joint Master Degree or Double Degree Master. The EU and Romanian legislation have clear regulation in both cases. The previous experiences of the University of Bucharest suggest us that the Double Degree scenario is the easiest way to reach tangible results. It seems that one semester study abroad is perfectly feasible from the point of EU institutions. This action can be implemented based on the ERASMUS mobility and the ECTS system. If the universities experience financial limitations, a virtual mobility can be implemented; DDLUB has been successfully tested video-conference platform CISCO-Webex. In this case, the students travel abroad can be scheduled



for only 2 weeks (low costs) and focused on face-to-face, final examination. Anyway, the existing electronic platforms (Google, Canvas etc) can handle the collaboration and communication (synchronous and asynchronous). Finally, we strongly believe that all the face-to-face activities can be implemented in a virtual mode (and... sometimes, more efficiently).

Conclusion.

This paper presents the "ICT in Education" MA study program from DDLUB, Romania. This program is targeted to the needs of teacher training to use modern digital technologies in education. The authors are interested to develop a transnational cooperation in order to establish a Double Degree Master program together with valuable partners from other higher education institutions.

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