

# Challenges in the Design and Development of a “Third Generation” E-Learning/Educational Platform

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**Marius Marusteri**

*Department of Medical Informatics and Biostatistics, University of Medicine and Pharmacy Targu Mures, Romania*

**Marius Petrisor**

*Department of Medical Informatics and Biostatistics, University of Medicine and Pharmacy Targu Mures, Romania*

**Peter Olah**

*Department of Medical Informatics and Biostatistics, University of Medicine and Pharmacy Targu Mures, Romania*

**Bogdan Haifa**

*Department of Medical Informatics and Biostatistics, University of Medicine and Pharmacy Targu Mures, Romania*

**Vladimir Bacarea**

*Department of Research Methodology, University of Medicine and Pharmacy Targu Mures, Romania*

**Klara Brinzaniuc**

*Department of Anatomy, University of Medicine and Pharmacy Targu Mures, Romania*

## INTRODUCTION

Which would be the main criteria to choose a new e-learning solution for my school, my university or my company?

The answer for this question is not at all an easy one, because it may raise many other related questions: May that solution solve all my specific needs: e.g. asynchronous e-learning, local/remote virtual classroom management, the production of the educational content etc?; How difficult will be for the teachers/students to learn how to use it properly?; Is that solution a cross-platform one? Is it able to run on all the computers/servers I may have?; Is the solution easy to install and maintain or not? How much it may cost me, regarding not only the acquisition costs, but also the Total Cost of Ownership (TCO)? etc.

The present article will try to provide some answers for such questions from both perspectives: from the

users of the e-learning solutions viewpoint and also from the developers side.

Based on the authors experience as users and developers of award-winning e-learning solutions, the article will try to inform the interested readers, about the current main trends in the e-learning field, focusing also on some controversies, issues and problems related to the design, implementation and the usability of the past, present and future e-learning solutions.

Therefore, the article will propose a new and more practical classification of the e-learning solutions, based on the level of integration between the asynchronous/synchronous e-learning technologies and on the “collaborative” e-learning model and will underline some of the main drawbacks and issues related to the current e-learning technologies.

Last, but not least, we tried to exploit the experience gained while we faced the challenges related to the design, development and implementation of a “next generation” integrated e-learning platform - the Ro-

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ELME (Romanian E-learning Made Easy) educational platform, in order to propose some solutions for the above mentioned issues. Also, some very interesting future research directions emerged from those challenges, directions presented at the end of the article.

But the final goal of the article is to draw the main “specifications” and requirements for the next-generation “collaborative e-learning/educational platforms,” specifications based on RoELME educational platform’s paradigms, to let both future users and present developers of e-learning solutions to be aware about the new trends in the field.

## BACKGROUND

On today scientific literature, there are many definitions of the “e-learning” term, depending of the author’s viewpoint: e.g. Technology-driven definitions, Delivery-System-Oriented definitions, Communication-Oriented definitions, Educational-Paradigm-Oriented definitions etc (Sangra, 2012).

From the same perspective, there are also many (more or less partial) synonyms for the “e-learning” term – creating even more confusion related to the above mentioned definitions - such as: multimedia learning, virtual learning/virtual education, online education, Technology-Enhanced Learning (TEL), Computer-Based instruction (CBI), Computer Assisted Instruction/Computer Aided Instruction (CAI), Computer-Based Training (CBT), Internet-Based Training (IBT), Web-Based Training (WBT), m-learning/Mobile Learning etc (Kaplan-Leiserson, 2000).

But, based on our experience as users/developers of e-learning solutions (Marusteri, 2005, 2006a, 2006b), on the progress of the ICT domain and on the recent scientific literature (Goodyear, 2010; Spooner, 2011; Wang, 2012), we consider that some of these “synonyms” may be seen now much more as some particular branches of the e-learning domain, rather than proper or even partial synonyms of the “e-learning” term.

For example, the “Technology-Enhanced Learning” - TEL term, which in the past included fields that are considered now “classical” e-learning activities - like virtual classroom, online learning, digital libraries, virtual laboratories (Heeter, 1999) - should be now considered a major and innovative branch of the e-learning field, rather than a partial synonym of the term. It may explore now learning futures that

incorporate digital and communications technologies in innovative and transformative ways, focusing especially on “instructional patterns design” and/or “enhanced reality” learning experiences – such as 3D Virtual Worlds/Environments, Augmented Reality Environments/simulators, robotic patients simulators etc (Diener, 2009; Goodyear, 2010; Spooner, 2011).

Anyway, while many researchers/scholars are still focused on the above much disputed e-learning definitions/synonyms, it is important for us to remember that, whatever ICT technologies it may use, the e-learning field’s main purpose should be to facilitate the learning process for the people, to enhance their learning experience, in order to reduce their learning curve for a specific science/knowledge field.

Unfortunately, it seems that many researchers in the e-learning area are prone to forget those aspects or even the fact that various e-learning technologies may be used in or out of the classroom, thus focusing on some controversial aspects of e-learning, instead to be more focused to find new ways and new technologies to digitally improve both in and out of classroom learning experience.

In our opinion, the main classification of the e-learning technologies and solutions should be done from the presence and/or absence of the teacher/instructor’s viewpoint (or, to be more precise, based on the way used to assure communication between the teacher and the students). We should talk mainly about “asynchronous e-learning” methods and technologies - when the student may use the e-learning resources provided by the teacher/instructor for self-paced/flexible learning activities - or he/she may be teacher-led - the so-called “synchronous e-learning.”

While both synchronous and asynchronous e-learning methods are widely used today all over the World, it seems that are yet not enough research activities, nor very promising research results, regarding the complex and complete integration of both synchronous and asynchronous e-learning technologies, together with new intuitive and innovative ways for multimedia educational content generation and sharing (Marusteri, 2008).

Such integration of both e-learning methods, plus some very intuitive and creative ways to generate e-content (designed especially for people without deep IT skills), in the so-called “collaborative e-learning/educational platforms,” will let teachers and students to intuitively interact with each other and to generate and

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