

Chapter 15

NAUK.si: Using Learning Blocks to Prepare E-Content for Teaching Mathematics

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ABSTRACT

The lack of tools that are easy to use, but at the same time provide the functionality required for a quality education, and technical knowledge that is necessary for the implementation of electronic-based education, are currently the main two obstacles that hinder wider use of e-learning in schools as well as elsewhere. The NAUK group (<http://www.nauk.si>) is aiming to solve that problem by developing a new paradigm of learning blocks accompanied by tools for easy creation of content and its adaptation to the teachers' needs. When dealing with e-learning content it is our goal to allow teachers to be in control of the content, thereby putting them "back into the game."

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INTRODUCTION

The world we live in is currently undergoing substantial changes. Namely, we are witnessing the process of transition from the Industrial Age to the Information Age. In the last 100 years our lives have virtually been turned upside down. For example, a surgeon from the second half of the 19th century would be completely lost if he were to walk into a modern operating room. Not just because of all the new equipment; the change in the procedures performed is even greater.

What if a teacher travelled through time? Would he or she see any substantial changes in the educational process? The world is changing rapidly, but the educational system is not keeping pace. The currently prevailing educational model is still the same as the one established in the 19th century, developed to meet the needs of industrial economy. At the time, there were a certain number of children in the classroom, who were all taught in the same way, using the same approach and the same teaching materials (<http://www.wearethepeoplemovie.com>; Banathy, 1991; Education, n.d.).

The children sitting in the classrooms of today are different. They are the so called “net natives” (Prensky, 2001). Using information and communication technology is something completely natural for those pupils. Their approach to the process of gathering information and performing communication is different. Computers and communication devices are ubiquitous to them (Prensky, 2001; Lusoli & Miltgen, 2009; Evans, 2007). Furthermore, students are progressively becoming an increasingly heterogeneous group, mostly due to the lifelong learning initiative.

We live in a society where everything is individualized and personalized: computers are built to our exact specifications; we personalize our mobile phones with ringtones, wallpapers, skins, etc. Students, on the other hand, are repeatedly taught in the same way. If we take into account the fact that not all students are learning at the

same pace, in the same environment, following the same learning path, and using the same methods, it soon becomes apparent that an individualized approach is absolutely essential. It has been widely confirmed by research that every individual assimilates information according to their own needs and interests. Learning styles vary as well. Some people are visual learners, some learn by auditory means, others kinesthetically (Dunn et al., 2002).

The current public education systems continue to assert that a “one-size-fits-all” full time classroom-based model can and will effectively serve all students (<http://www.wearethepeoplemovie.com>, Banathy, 1991). However, just as everything else, education needs to be customized.

There has been extensive research done regarding the appropriate role of technology in the educational process; therefore, we will not even attempt to cite the numerous sources. However, the findings can be neatly summarized in two sentences; both are quotations from the Teaching Matters booklet: A handbook for UTS academic staff from Institute for Interactive Media and Learning, University of Technology, Sydney (IML, 2009). The first one states that “New technologies should be used in the most appropriate way to provide a quality learning experience for students.”, whereas the second one determines that “The most effective kind of learning experience is determined not by the technology available, but by considering what is most appropriate for the students, the subject and the learning objectives and then selecting the most appropriate technology to use.”

Therefore, it is apparent that the existing educational model is not appropriate anymore. Organizational issues shall not be discussed in this chapter, although they are numerous and need to be considered as well; two examples of such issues being: is the existing course model still sustainable, and is the formal division of students into different classes of equal size and age still appropriate? Instead, the chapter will focus on an issue that is crucial to the development of education, although it may not possess the immediate

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