
Personalizing e-learning content quickly and easily

Primož Lukšič, Matija Lokar, Boris Horvat, University of Ljubljana, Faculty of Mathematics and Physics, Slovenia

Abstract

If we consider the way “classic” teaching resources (such as textbooks, workbooks, etc.) are used by teachers we observe that they lead the learner through the resource, giving instructions on which part of the resource is to be used, how the learner should proceed, which set of exercises is to be done, what should be skipped etc. Thus, they are actually constantly making different combinations of different materials. The class the teacher is teaching and the pedagogical situation must always be taken into account in this process. Hence, it is very rare that any resource is used precisely in the way it was prepared. Authors of resources (e.g. workbooks) namely envisage a hypothetical pedagogical situation with hypothetical students. But the actual teaching process is always at least slightly different as the hypothetical one the author had in mind. Since the teacher should use the resources in the most appropriate way, s/he is “forced” to adapt them.

Nowadays the support of information and communication technology (ICT) plays a significant role in the process of teaching. More and more e-resources are available and can be used for teaching. But by analyzing these resources we often find that their authors do not use all of the opportunities offered by new technologies. One of their most significant drawbacks is the fact that authors too often forget (or neglect) the fact that these resources are meant to be delivered to the learners through teachers. Namely, e-resources are all too often just monolithic blocks (or at least their main parts are). This demands that the educator takes them as a whole, precisely in the order they were written in. Is that really necessary? Do all educators need the same form of resources, do they want to use them in the same order, and do they want their learners to see the same examples, do the same tasks? Why not use the possibilities that the new technologies offer and at the very least give the educator the chance to adapt the materials to their own and their learner's needs. Recent studies have shown that teachers need e-learning content that they can easily adapt and reuse for their own purpose. This means that lessons should be made out of small adaptable learning blocks or, as they are also called, “knowledge objects”.

Therefore, a new concept of how to create really useful e-learning content has evolved in Slovenia; namely, by “putting the teacher back into the game”. The selection of proper technologies and tools for managing e-learning content and the establishment of a user-friendly and easy-to-use environment for creating and modifying the content, are essential to ensure the support and popularization of e-learning.

In this paper, we present new ideas with proofs of concept of modular, really interactive e-content for teaching mathematics, physics, logic and computer science using open-source solutions and open standards. The mentioned content is not intended to be used as an electronic teaching book, but an add-on to the standard learning material. You can see some preliminary results, which are mostly meant for primary and secondary school teachers, at <http://www.nauk.si>.