

## On-line templates for the production of web-based multimedia language learning materials

Fabio Tamburini (f.tamburini@cilta.unibo.it) Stefania Paci (s.paci@cilta.unibo.it)

CILTA – University of Bologna, Piazza S.Giovanni in Monte, 4, I-40124, Bologna, Italy

Tel: +39 051 2097769 Fax: +39 051 2097751

The language centre of the University of Bologna has been involved for many years in teaching languages using multimedia software in self-access environments. What we needed was authoring tools to create web-based exercises, modules and courses for language learning. Such tools had to be flexible, and able to accommodate the necessary procedures for the designing of language learning materials (including, multimedia content) in the form of a large variety of exercise types. The tools had to accept the simplest input from teachers, ideally just exercise texts and multimedia samples, and to produce ready-to-use materials for distance learning to be used in a self-access environment. From the technical point of view, they had to be used on a standard interface such as web browsers.

The recent improvements of Web-based technology, in particular thanks to dynamic HTML mark-up specifications (HTMLv4.0) and JavaScript scripting additions, led us to devise a system heavily based on this technology; all the tools needed to design multimedia applications for language teaching can be adequately implemented in this framework. Drag & drop features, dynamic changes in the page layout, appealing interface design and multimedia delivery are examples of such features. Using such methods, and the XML mark-up language, we designed an authoring tool that allows the teachers to specify directly the exercise contents using pre-designed **XML templates** available on a web site. The teachers insert the XML specifications of a certain exercise type into a web form (presently we have 15 on-line templates for different teaching needs), and an XML parser builds the final DHTML page, inserting all the necessary scripts, interface objects (buttons, boxes, menus, layers, etc.), images and links for the selected exercise type. The final page is ready to be saved and inserted into a module/course.

The parser plays a central role in such schema. It is able to translate our XML templates, adding all those features needed for the correct use of the language activity, as well as the design of a proper interface with a standardised (but appealing and reconfigurable) layout. All phases of this process are handled in a centralised way allowing for easy maintenance and modification of any part of the templates. Such a structure allows for a clear separation between the process of creating language materials by the teachers, and all the technical issues needed to publish web-based documents. In addition to template management, there are supports to link the DHTML-generated files into teaching modules or even to build entire web-based language courses. In order to enhance performance, maintaining excellent quality, the audio and video samples are managed as compressed files with MP3 and DivX technologies.

The teaching staff appreciated this schema, and the templates are currently in use in various projects: the materials obtained from these templates are currently in use as a learning tool at all teaching levels for different languages (from elementary to advanced levels) and for different age groups from children to university students.

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