ReCALL Journal

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Projects

The IN6ENIO online CALL authoring shell

New challenges in developing an online CALL authoring shell, content manager and courseware: the IN6ENIO model

1. Introduction

On-line language learning courseware is still today in its initial stages. A great amount has yet to be researched and developed in terms of second language acquisition with the support of Information and Communications Technologies (ICT) in order for teachers to gain confidence and thus integrate the internet into their teaching practice. Although Computer Assisted Language Learning (CALL) has slowly crept into current trends in language teaching, teachers still have to explore a great deal in their everyday practice to find the best tools, whether on CD-ROM or on the web, to suit their learners' needs, integrate these tools coherently into their language curriculum, and modify their teaching methodology accordingly.

Despite their robustness, CD-ROMs seem to have been set aside by many language teachers, giving way to on-line learning materials in spite of the many drawbacks that may be encountered during the process, i.e. band width, transfer rates, expense, but to mention a few. These issues have not, however, prevented language teachers from exploring the depths of creating web-delivered materials to supplement their teaching, although it is a fact that these isolated initiatives have not been channelled in order to be made available to the language teaching community at large. It is true, on the other hand, that there are currently an increasing number of initiatives around the world to maximise the effort and cost that goes into developing pedagogically sound on-line language learning materials by creating authoring packages to facilitate and guide the creation of materials. Most of these authoring tools, however, have to be installed onto personal computers for individuals to use independently without the possibility of creating a pool of multimedia exercises and resources that can be shared by a larger community.

This thought triggered Proyecto IN6ENIO, i.e. the will to design a completely on-line tool, based on the template approach to authoring, that would allow language teachers to design their own materials, create a database with these materials and make it
available to other users, and automatically convert these materials into learner-ready materials.

2. Proyecto IN6ENIO

Proyecto IN6ENIO is an R+D project, entirely funded by the Universidad Politécnica de Valencia, which has been designed and developed by the CAMILLE Research Group led by the author. The project has two basic practical aims. On the one hand, to create a language independent, on-line multimedia CALL authoring shell, and on the other, an on-line learning environment offering courseware designed and created with the IN6ENIO authoring tool.

2.1. Description of the IN6ENIO authoring shell

The IN6ENIO integrated on-line authoring and learning environment is divided into 10 sections, in addition to the "in6enio" button, which takes us to the entry page to select the language of the user interface - currently three languages can be used, i.e. English, Spanish and Catalan - as well as the "exit" button to quit the system.

The first two authoring sections enable us to manage "authors" and "students". Authors are language specialists or content providers with permission to create new or modify existing learning materials. Permission to edit is granted by the System Administrator and is given in order to either create new courseware starting from scratch or to add to or modify existing materials. The materials embedded in the system comprise the IN6ENIO database and are hosted on a central server. When given permission, teachers/content providers may access the database and feed their own newly created courseware with materials taken from the archive. The materials can be accessed as isolated multimedia components (video, audio or image files) or as readymade exercises or reference materials.

Students are registered learners of the courses created with the IN6ENIO authoring shell, embedded within the on-line learning environment. Access is not restricted to a particular course but to the entire learning environment. Currently two courses are available: an intermediate level course for learners of Valencian - Valencià Interactiu...
Grau Mitjà and an intermediate English course called *Intermediate Online English*. Registered users access the system by means of a user name and password.

The next two items, "languages" and "levels" enable us to register a new language and then assign the language level or levels that our materials will be created for, i.e. English - Intermediate, Advanced, etc.

The following three sections, "courses", "units" and "exercises", allow us to insert a new course, give it a name, a description, assign its language level and edit its contents directory; further to that we can create units, which resemble nodes, to which we attach exercises that can be assembled into pedagogically meaningful sequences. "Exercises" allows us to access the 14 existing exercise templates. These templates are very briefly described below with sample screens illustrating how the learner visualises the templates within the on-line learning environment. All illustrations are taken from *Intermediate Online English*.

### 2.2. Exercise templates

The following templates have been designed on the presumption that we must ensure variety, coherence and consistency when engaged in the process of creating multimedia activities and on the principle that the templates should be as open and flexible as possible in order to encourage authors to design creative tasks rather than restricting and confining their pedagogical input (Gimeno, 2002).

**Observation exercises.** This template allows us to insert any text type, audio file and/or image. These exercises have been devised to introduce the lesson contents by means of an introductory text, oral explanation and/or illustration. They are the simplest of the templates and offer a preview of what the learner will actually see on screen. Further exercises or links to other websites can naturally be associated to this screen.

![Intermediate Online English > Unit 1 > Warming up > What do you know about HDTV?](image)

**Video exercises.** This template allows us to insert video sequences in any of the most common formats (AVI, ...) at three different transfer rates in order to cater for different modem specifications (56, 256 and 512 kbps). Additionally, the video script can be included. The default mode does not automatically unveil the script, but instead, has to be called up. This template is particularly suitable when designing listening comprehension or branching dialogue exercises based on a video clip or on a sequence of synchronised still pictures.

**Multiple choice exercises (single selection pull-down menu).** This template combines text, audio and image. It can take a variety of forms such as listening to an
introductory audio sequence or reading a question and then clicking on the appropriate option. This exercise only allows one correct answer. It is particularly suitable for listening or reading comprehension activities such as True/False questions.

**Intermediate Online English > Unit 1 > Warming up > What do you know about HDTV?**

**Multiple choice (single selection menu) exercises.** This multiple choice template allows us to include a video or a sound file and an image. This variety only permits one correct answer. When the correct answer is selected the exercise is dimmed in order to invite the learner to continue with the following screen. Hints associated to each of the options can also be displayed if required. These appear in the form of "tool-tips". As well as the exercise text input, additional explanatory notes can be added. These are displayed underneath the options. The options can be randomised so that they appear in a different order each time the exercise is accessed.

**Multiple choice exercises (multiple selection).** This multiple choice template allows for several correct answers, as well as the possibility of including a video or an audio clip as initial input. It also permits the inclusion of images, both as support material or as selection items (options). It can have up to 25 options to choose from and each of these can have a hint associated to it. The options can be randomised so that they appear in a different order each time the exercise is accessed. An "evaluate" button tells the learner whether the selection made is correct or incorrect.
Gap filling exercises. This template also allows the inclusion of an image or an audio file as additional input. Each gap can have up to a maximum of three correct answers, as well as a hint to aid the learner in its completion. We can also attach a help facility to each gap - which appears as a "tool-tip" - in addition to gap-specific positive and negative feedback. The learner can choose to see the correct answer partially, after having filled each blank space, or completely, after having completed the entire exercise.

Reordering exercises. This template allows us to create exercises where either images or text can be reordered vertically on the screen. The text to be reordered can be an individual word or an edited fragment (e.g. parts of a letter). It includes the option of adding a sound file as input to aid in completing the exercise. It also includes a "show correct answer" option that displays the elements in their correct order. These exercises can naturally be linked to other templates.
Clickable image (hot spots, single selection). This template allows us to create observation (passive) exercises which are specially suited to vocabulary practice. The learner-template displays an image (a photo, picture or illustration) and a number of "hot spots" can be selected which will activate a response by the computer when clicked on. This response can be audio, text or both. Up to 10 "hot spots" can be designated.

Clickable images (multiple selection). This template allows us to create exploration (active) exercises resembling the previous one but differing in that the audio or visual input triggers a response from the learner and appropriate feedback is provided immediately afterwards. In this model the learner is requested to make a choice out of a number of visual options. Both this and the above template allow us to include notes or additional activities below the pictures.
Open input. This template allows us to create rewriting or information transfer exercises. There is an initial textual input which has to be in some way modified by the learner by writing in a blank box. As in any open input activity, feedback is provided only as a model to follow, i.e. corrective feedback is not available. This template is useful, for example, to design translation activities from one language to another. Images can be added as visual aids.

Dictation. This template allows us to create more traditional dictation exercises. The template includes instructions, the audio file, visual support, the script and a blank box where the learner is requested to write. Feedback is only provided by being able to compare the learner's written production with the script.
**Association exercises.** In this template association can be made by matching text, image or sound to text. An introductory video clip or audio file can be optionally included, as well as visual support. The options can be randomised, allowing up to 25 options per exercise. The options appear in a pull-down menu next to the exercise input, which can take the form of a definition, an abbreviation, etc. An "evaluate" button provides the learner with the correct answers.

**Word search puzzles.** Two templates to create word games have been developed. The first one enables us to create word search puzzles. We can optionally provide the learner with a hint by displaying a list of words that have to be found. The words are selected by clicking in the first and last letters. Immediate feedback is provided and a "show answer" option displays a picture of the completed puzzle.

**Hanged-man exercises.** This word game template allows us to create hanged-man exercises, which can work at letter, word or sentence level. The number of attempts are limited to 6, which are the number of elements comprising the hanged-man.
3. General template features

Feedback has also been factored into all the templates, whether intrinsic or extrinsic, immediate or delayed, etc., in order to facilitate a pedagogically sound framework for the courseware design and to allow content providers to design user-specific feedback (Bangs, 2003). This is achieved because the system allows us to include branching feedback options according to learner performance in completing an exercise.

Time limits can be given to all exercises although the default mode is without a time limit. The number of attempts allowed can also be restricted. These options are useful when designing entry or progress tests.

The images, audio or video files embedded in any of the exercises can be called up directly from within the authoring shell to enable authors to be aware at all times of all the multimedia components that integrate a sole activity. Images, furthermore, are automatically resized to fit the their location within the learner-template, thus avoiding materials writers from having to edit images unnecessarily. It is, however, useful if the language specialist is familiar with one of the many picture editors available such as Adobe Photoshop or Jasc Paint Shop Pro.

One of the features we can specify within any of the templates where the learner is requested to write is whether we wish student input to be case sensitive or not.

All the exercise templates include an item which indicates the programming unit the exercise is found in so that the content provider can swap from author mode to student mode by using the alt+tab combination and locate exercises more easily. This is possible because every time the materials are updated by clicking on the appropriate ticks in the author mode, the information is automatically updated on the central IN6ENIO server.

Although voice recording has not been programmed into the system, it is nevertheless possible to design exercises where the learner is requested to record his or her own utterances by accessing the Windows Media Player, which can be called up and minimised when not in use. Evaluation of oral production will of course be subject to learner comparison with a pre-recorded model. Future developments include incorporating voice recognition software to the system.

Links to other web pages/resources can be included in any of the exercise or reference materials templates. This is particularly suitable when designing exercises where the learner is requested to access another existing web page, for instance to read or listen to a passage, or even watch a video sequence, and then complete our own exercise. This obviously avoids problems with copyright clearance issues.

In order to create a user-friendly environment and avoid unnecessary frustrations on behalf of inexperienced CALL materials writers, the IN6ENIO authoring shell requires no additional software to be installed except for RealPlayer, which is the application through which all the audio and video files are reproduced. When authoring, writers encounter each and every one of the template components within a single screen thus avoiding them from having to become familiar with a complex menu system.

4. Reference materials

The following two items, "books" and "pages" enable us to create reference materials such as grammar notes, use of language, cultural information and so forth, which can be associated individually to exercises, in order to respond to particular questions which may arise during the study process, or accessed individually as self-contained sources and comprise their own navigation system by means of hypertext links. Any number of media objects can be embedded in these pages to enhance the materials and facilitate learner retention.
As we can see, new reference materials can be easily added by indicating the language, giving it a number reference and a description. The new book will be inserted by clicking on the tick and immediately entered into the list of already existing reference sources. This screen also enables us to edit the contents directory and preview any of the "books" by clicking on the appropriate buttons.

The actual pages within any of the books can be created, modified, edited or deleted by going to the "pages" option in the main window menu. The page contents (text and image) have to be inserted using html coding, therefore content providers must also be familiar with an html editor such as Macromedia Dreamweaver, which allows us to edit the text according to our preferences. The source code simply has to be cut and pasted into the blank box provided. This screen also automatically previews the contents of the page so that authors can immediately verify them. These newly created pages can be linked to existing exercises or as an introductory section to all the exercises within a learning unit, as we have done in our Intermediate Online English course.

The last but one item on the menu, under the heading "dictionaries" allows us to create monolingual or bilingual glossaries and dictionaries. Words or expressions are inserted by selecting a language, writing the new entry, adding a definition/translation and clicking on the tick. The entry immediately appears in the word list where it can be edited or deleted.

5. Student assessment
Progress reports can be called up at any point during the learning process since the icon which links to the assessment facility is permanently located on the bottom menu bar of the courseware. The data is automatically transferred to the IN6ENIO server while the materials are in use. Students can therefore monitor their progress during the course of their work. The results are presented in percentages, registering date and time, the number of completed exercises per unit, the number of correct and incorrect answers, etc., as can be seen below.
Since the learner's progress reports are saved onto the server, when using the courseware as a supplement to regular teaching classes, teachers may access this information upon request.

6. Conclusion

The IN6ENIO multimedia CALL authoring shell and on-line learning environment are unique in the sense that all the components are managed via the web. The system is completely machine independent, allowing teachers/materials writers to work from any computer at hand. It is an extremely versatile and flexible open system that can be constantly updated and improved. Our aim is to disseminate IN6ENIO as shareware, which means that the entire platform will be available at no cost whatsoever to the users under the condition that any improvement will be shared with us.

7. References


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