AN E-LANGUAGE LEARNING EVALUATION CASE STUDY

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ABSTRACT

In recent years, higher-education has started to introduce blended-learning schemes in the language learning curricula. The evaluation of this kind of scheme has two important aspects: the design of the resources and the delivery of the courses. The use of specialised tools makes both of these aspects easier. This study focuses on the evaluation of an e-language learning scheme undertaken at the Universidad Politécnica de Valencia (Spain). The pilot scheme was carried out in the context of a blended-learning course in a Public Management degree which has used the InGenio authoring tool and system to design and deliver the course. An evaluation method has been used to organize and control the several phases in the e-learning experience as well as the quality criteria to be checked. The paper describes the application of the method and some implementation mechanisms used in order to check the e-learning experience are also reported.

KEYWORDS

E-learning experience, language learning, design tools, courseware delivery, evaluation method

1. INTRODUCTION

Second language learning was one of the first educational disciplines to incorporate the use of technology into their learning processes. Traditionally the language learning curriculum has made use of practice activities specifically designed to improve the necessary skills to acquire a good knowledge of the language (e.g. reading, writing, speaking or listening). Multimedia technologies facilitate the improvement of these skills by enabling us to adapt the activities to the required level, repeating the exercises according to the needs or providing immediate feedback in each activity.

In recent years a large number of resources have been developed to support language learning based on information and communications technologies. Although these resources were mainly used in life-long learning environments they are now included in many higher-education settings under different modalities of e-learning scenarios. We define the concept of e-learning experience as the learning process based on the use of these technologies. In the current context such experiences become e-language learning experiences and they can be 100% virtual or use technology as a means to support the face-to-face learning process or a blended-learning process.

The fast and massive development of these types of experiences requires evaluation methods, on the one hand to evaluate the e-learning resources and tools involved, and on the other, to evaluate the specific learning processes in language domains.

There are several approaches for the evaluation of e-learning resources in different categories such as offline or interactive resources and web-based resources. One of these approaches provides a catalogue of evaluation parameters and a classification of multimedia resources (Pérez, 2004). In the context of web tool evaluations, another approach provides a number of questions or quality criteria grouped by content, instructional design and form (Szendeffy, 2007), and another approach proposes a pedagogic method for analyzing web-based resources and an analytical tool to support this method (Seiz, 2006).

As pointed out by the E-learning team at the Centre for Academic Practice based at the University of Warwick (UK) “A single model for evaluating e-learning is, however, hard to define. Learning technology is still a fairly new field. Understanding of the theory and pedagogy that underpins the use of the technology is constantly being revisited in the research community. Developing e-approaches is
therefore compounded by the absence of a widely established and practiced methodology by which rigorously to evaluate e-learning, and through which to develop the secure body of knowledge on which to build learning technology as a discipline."

It seems however to be generally agreed that e-learning evaluation processes are necessary if only to vindicate the use of these systems in higher education. This study therefore addresses the evaluation of second language e-learning experiences in which web-based resources are used and which have been designed by means of authoring tools for a specific language learning context. The evaluation scope is mainly focused on higher education contexts and blended-learning experiences.

The paper presents the evaluation of a blended-learning experience, conducted at the Department of Applied Linguistics at the Universidad Politécnica de Valencia (UPV), using a new evaluation method. In addition, the InGenio Authoring Tool and System (Gimeno, 2006) has been used to design the learning resources and to delivery the course in the context of the current experience.

The paper is organized as follows. Section II describes the main features of the resources and tools used in the language learning experience. Section III presents the method to evaluate these e-learning experiences. Section IV describes the InGenio evaluation case study, and finally, Section V closes with some concluding remarks.

2. E-LANGUAGE LEARNING

It is currently common for higher education institutions to include language learning curricula combining face-to-face sessions with on-line activities. These blended-learning schemes require special learning methods adapted to the context and to the specific learning level. Some of the methods are autonomous learning, guided learning, collaborative learning, problem-based learning and inquiry-based learning.

The e-learning resources used in these experiences must be designed according to the learning level, the student’s technical skills and the targeted focus area (technical, business,…). The use of tools that make the creation of materials which can be adapted to each level and to each learning context easier therefore become increasingly necessary.

There are several tools to facilitate the design of activities, exercises, grammar explanations, vocabulary development and other resources which support the acquisition of a foreign language. Many of these are based on the template approach to software authoring (Gimeno, 2002), which is particularly suited to and is increasingly used by the language learning community in order to design and deliver e-learning materials.

An example of this kind of tool is Hot Potatoes, published by Half-Baked Software. This tool enables to us create web-based learning exercises providing six applications to create interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the Web. MALTED (Multimedia Authoring for Language Tutors and Educational Development) (Bangs et al., 2004) is another authoring tool that offers a flexible approach to the creation of learning designs in two ways, firstly the templates themselves can be adapted in many ways and secondly, all the templates when populated with content, can be linked together in a variety of ways. The HAUPA Tool (Hervás et al., 2002) is based, on the one hand, on a pedagogic model and on the other, on a quality management model.

The InGenio System (Gimeno, 2006) was developed in the context of an institutional project and is composed of for components: an authoring tool that allows language teachers to design their own materials, a learning environment that delivers the on-line courses created with the authoring tool, a tutoring system that allows the teacher or tutor to monitor the student’s learning process, and a translation tools that allows the materials to be adapted into any number of support languages. All the components are managed via the Web and it is a versatile and flexible system that can be constantly updated and improved. The system also enables changing the language of the graphical user interface in order to adapt it to the user’s first language.

The InGenio authoring tool provides 14 fully operative exercise templates (multiple choice, gap-filling, reordering, association, word search puzzles, open input with audio, video,….) as well as a number of templates to create reference materials such as grammar notes, use of language, cultural information and so forth, which can be associated individually to exercises or accessed as independent tools from the course. Figure 1 illustrates an example of a template to create gap-filling exercises. The system allows the teacher to organize the materials by creating learning units and grouping these into ready-made courses.

The online learning environment delivers the courseware that has been designed with the authoring tool. It controls access and provides different roles for accessing the system: student, author, tutor or...
translator/adapter o materials. The system includes a student assessment facility that allows both tutors and students to monitor the learning process (progress, assessment, exercises scores, etc.).

The development of blended-learning based experiences is a complex process that has to combine face-to-face sessions with virtual activities adequately. Success of the virtual activities is due, among other reasons, to the design of the materials and to the learning method applied. The evaluation of these processes can contribute towards detecting mistakes and improving them. Evaluation, we believe, is central to ensuring the quality of academic practice.

3. EVALUATION METHOD

The evaluation of e-learning experiences is a complex process that requires a method to organize the operation phases and the components to be evaluated. In this case, an evaluation method (Ejarque et al.) has been used to define, on the one hand, the features of the specific learning scenario in which the experience is developed (e.g. a course or a lesson about a specific grammar issue) and, on the other, to allow the evaluator to organize and control the evaluation process using a lifecycle model.

The definition of learning processes is based on elements such as Objectives, Methods, Activities or Resources that describe the specific learning scenario. For each lifecycle workflow (e.g. the design of a course or its delivery) quality criteria can be defined and assigned to evaluate the components of a specific learning scenario (e.g. the usability of e-learning resources in the delivery of a blended-learning course).

This method defines a two-phase evaluation process. The design phase allows the evaluator to define the different parameters of the evaluation process such as the specific learning scenario, the selected lifecycle workflows and the quality criteria to be checked. Figure 2 shows the main steps leading to the stage where the evaluation process has been designed.

![Figure 1. Example of a template from the InGenio authoring tool.](image)

Although there are many definitions for blended learning, in this paper we understand it as being “The thoughtful integration of face-to-face classroom (spontaneous verbal discourse) and Internet based (reflective text-based discourse) learning opportunities. It is not an add-on to a classroom lecture nor an online course; it is a fundamental redesign. It allows for an optimal (re)design approach to enhance and extend learning by rethinking and restructuring learning and teaching to create blended learning.” (Vaughan and Garrison, 2005).

![Figure 1. Example of a template from the InGenio authoring tool.](image)
Table 1 shows the learning scenario of the InGenio case study. For example, the method used in this learning scheme combines guided learning with problem-based and collaborative learning. For student-teacher communication an e-mail service and an e-learning platform are used.

Table 1. InGenio Learning Scenario.

<table>
<thead>
<tr>
<th>Learning Scenario Elements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>To improve the student’s English level</td>
</tr>
</tbody>
</table>
| Context                    | Higher education  
Subject: Intermediate English  
30 students |
| Conditions                 | Combining face-to-face sessions with virtual activities.  
Virtual activities are supervised, assessed and marked by the tutor online.  
The final mark is an average between the online exercises mark and the mark given by the teacher. |
| Roles                      | System administrator: José Macario de Siqueira Rocha  
Technical staff: José Macario de Siqueira Rocha  
Author of content: Ana Gimeno et al.  
Tutor: Ana Gimeno  
Students |
| Resources                  | Multimedia classroom  
InGenio Authoring Tool  
InGenio Learning Environment  
PoliformaT (university e-learning platform) |
| Methodology                | Blended-learning  
Guided learning  
Problem-based learning  
Collaborative learning  
Student-teacher Communication by email and the university e-learning platform |
| Activities                 | In the face-to-face sessions, the students practise oral exercises with the teacher about topics relating to the online course.  
The student follows the online course, grammar and exercises for each unit  
At last of the course, the teacher has a personal interview with each student |

The implementation phase controls the design of the procedures to obtain information regarding the experience, the application of these procedures and the analysis and validation of their results. Table 2 shows some examples of questions that have been generated for the InGenio evaluation case study.
Table 2. Questions to students.

<table>
<thead>
<tr>
<th>Evaluation element</th>
<th>Quality criteria</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources</td>
<td>Usability</td>
<td>Did you find the interface user friendly?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is navigation intuitive?</td>
</tr>
<tr>
<td></td>
<td>Difficulty</td>
<td>Is it easy for someone with minor computer skills to use the online course?</td>
</tr>
<tr>
<td></td>
<td>Clarity</td>
<td>Are graphics/symbols clear to the user?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the layout (use of colours, fonts, icons) appealing to you?</td>
</tr>
<tr>
<td></td>
<td>Adequacy</td>
<td>Is the language input meaningful and interesting?</td>
</tr>
<tr>
<td>Activities</td>
<td>Usefulness</td>
<td>Did you find the listening comprehension exercises useful?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did you find the reading comprehension exercises useful?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did you find the exercises useful and meaningful?</td>
</tr>
<tr>
<td></td>
<td>Difficulty</td>
<td>Did you find the exercises easy to complete?</td>
</tr>
<tr>
<td></td>
<td>Clarity</td>
<td>Are the exercise instructions clear and precise?</td>
</tr>
<tr>
<td></td>
<td>Fulfilment</td>
<td>Are you satisfied with the variety of activities?</td>
</tr>
<tr>
<td></td>
<td>Motivation</td>
<td>In general, do you think that the online course encourages autonomous/independent learning?</td>
</tr>
<tr>
<td></td>
<td>Assistance</td>
<td>Did you find the reference materials sufficient?</td>
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<tr>
<td></td>
<td></td>
<td>Did you refer to the reference materials in each Unit before starting to do the exercises?</td>
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<tr>
<td></td>
<td>Timing</td>
<td>Did you complete the entire 8 Units of the online course in 45 hours?</td>
</tr>
<tr>
<td></td>
<td>Progress</td>
<td>Did Units 1-4 help you improve your technical English vocabulary?</td>
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<tr>
<td></td>
<td></td>
<td>Did Units 5-8 help you improve your general English vocabulary?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In general, did your level of English improve after completing the online course?</td>
</tr>
</tbody>
</table>

4. EVALUATION CASE STUDY

An e-language learning experience has been checked by means of the previous evaluation method. The experience deals with second language learning and it is based on the use of the InGenio e-learning environment. The current evaluation case study addresses the subject entitled Intermediate Online English delivered at the School of Design Engineering. The evaluation was conducted during the first semester of the 2007-2008 academic year. Figure 3 shows an example of a screenshot taken from the environment that displays the information concerning the InGenio evaluation process.

The evaluation design has been focused on the “Course Design” and “Course Delivery” workflows. The course contains face-to-face sessions that are combined with online activities. The web-based course has been designed using the InGenio authoring tool. Firstly, the author (teacher and tutor) analyse the requirements and the student’s needs and design the resources with the authoring tool (using the exercise and activity templates). During the entire process, the technical expert provides all the necessary support. The system allows the author to organize the resources into units that determine the learning path to be followed by the learner. Each of the units in the online course comprises an introductory grammar section followed by the exercises and activities. The course has been developed using the InGenio learning environment, which controls the learner’s access to the system, monitors the time required to complete the exercises and displays the marks achieved by the students.
In order to evaluate the case we are focusing on here, several mechanisms have been implemented. Questionnaires have been developed to gather the opinion of students who undertook the course and interviews with the teacher and the project manager. The questionnaires were designed by using a web-based tool that is available to create online surveys called Limesurvey (Limesurvey Soft.). This tool is a multi-lingual web-based application that offers 20 different question types, anonymous and not-anonymous surveys, user-management, assessment surveys and others characteristics. Figure 4 shows a screenshot taken from the student questionnaire based on the Limesurvey delivery environment. The survey contains 20 questions organized into 4 groups: interface, exercises, opinion and results. Each of them can be answered with Yes/No or even provide a comment for the answer.
Eighteen responses were obtained from a total of thirty students enrolled on the course. In general, evaluation results were very positive in regard to the different issues dealt with. These results have been compared with the evaluation carried out the previous year regarding the same experience. Figure 5 shows the results of the two evaluations (2006-2007 and 2007-2008 academic years) and reflects that, in both courses, most of the students agree with almost every question in the survey. In the 2006-2007 survey, the unique question in which students disagree is about the time needed in order to complete each activity (in the Results group). However, in the 2007-2008 survey this question result has been improved. Moreover, students consider that the difficulty of the exercises has increased this year.

Figure 5. Results from the student questionnaire.

Figure 6 shows the academic scores, calculated from the average between the automatic grading provided by the system on completing the online exercises and that provided by the teacher. The comparative analysis with these academic scores agreed with this general perspective since the average grade on the course was above 3 (scale between 0 and 5).

Figure 6. Academic scores.
5. CONCLUSIONS

In this paper we have discussed the evaluation of a language learning pilot scheme based on autonomous learning and blended-learning methodologies. In this kind of experience, specific tools are needed to create resources according to each learning level and to the technical skills of each student group. In this blended-learning experience, an authoring tool has been used to design the materials and a learning environment to deliver the course. These tools have been developed within the InGenio Project at the Universidad Politécnica de Valencia, Spain. A method has been used to evaluate e-learning experiences based on the use of the InGenio environment which has been divided into a two-phase evaluation process. The design phase has allowed the evaluator to configure the language learning scenario, the lifecycle workflows (e.g. course design and course delivery) and the quality criteria to be checked. The implementation phase has enabled the elaboration of procedures to obtain information concerning the e-learning experience, apply these procedures and analyse and validate the results. The analysis of the evaluation results (student opinions, interviews with teachers, academic scores) has shown the efficiency of this kind of blended-learning experience in higher education. In addition, these results have shown that it is necessary to conduct surveys of this type to improve course design and development. In further research we plan to add the analysis of the learning environment’s system logs to the evaluation results and to carry out new case studies in order to improve the development of blended-learning schemes and scenarios. Moreover, a web-based tool to manage evaluation case studies is also being developed. The use of this tool will qualitatively improve the analysis of the data gathered from experiences such as the one described above by providing better search mechanisms and enriched possibilities of comparing relevant data.

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