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A ready-to-use instructional design model for the deployment of an LMS for second language teaching

Víctor Coto Ordás, Universidad de Oviedo, Spain

Abstract: This paper aims at providing an overview of key issues concerning the planning and implementation of an LMS for second language teaching at a higher education institution, given that administrators and educators considering the possibility of delivering learning digitally need some criteria in order to assess the educational and economic implications of moving to an online environment. We have taken the classical ADDIE instructional design model as a starting point for our own planning, but we have chosen to provide it with more flexibility in the search for a model open to constant revision and designed to focus on content. Since this kind of proposal might be at risk of being regarded as another tired approach to instructional design, we have tackled this issue from both a theoretical point of view and a more practical and down-to-earth approach that accounts for the necessary steps in order to create an e-learning platform in the specific context of the Spanish language courses delivered at a Spanish university. In particular, we have laid out the initial stages of that process: carrying out a needs analysis, fostering the culture of innovation and creating an action plan.

Keywords: LMS, instructional design, L2 teaching

Introduction

One of the pitfalls when teaching online is to think that technology will one way or another clear out all of our problems. As a matter of fact, when lecturers face the task of designing an online course, we are sometimes blind to see that e-learning is not about technology but rather about creating courses that may be effective from a pedagogical point of view. Furthermore, shifting from a face-to-face setting to an online classroom requires not only a different skill set, but a different mindset.

Thus, we need to reflect on various challenges we shall be facing, namely: creating an online learning environment, researching into multidisciplinary teaching methods and choosing the right technology for us to deliver our language courses. And this is when instructional design comes into play.

Instructional design models provide a systematic approach to designing instruction on a particular educational setting by analysing learners and learners' context, establishing clear and concise assignment guidelines and expectations, creating instructor presence and a sense of community where students will be more likely to feel comfortable asking for help and allowing adequate plan for course development. All of this will provide us with an effective and engaging online learning experience, whereas lack of educational strategy will undermine our courses.

As most design models in the field of Information and Learning Technology, instructional design is regarded as a systematic process consisting of at least three

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phases, as in the 3-Phase Design Model, or even five phases, as in ADDIE[1]. But, as in Lewin's action research, we need to add a revision phase to this circle of planning and action so that the results of evaluation lead to a modification of the project and to a start-over, if necessary. Therefore, while some instructional design models are often listed in linear order, or else, become linear due to certain constraints (time, budget…) most organizations face, our proposal illustrates how it should be actually performed –in an iterative and cyclic fashion.
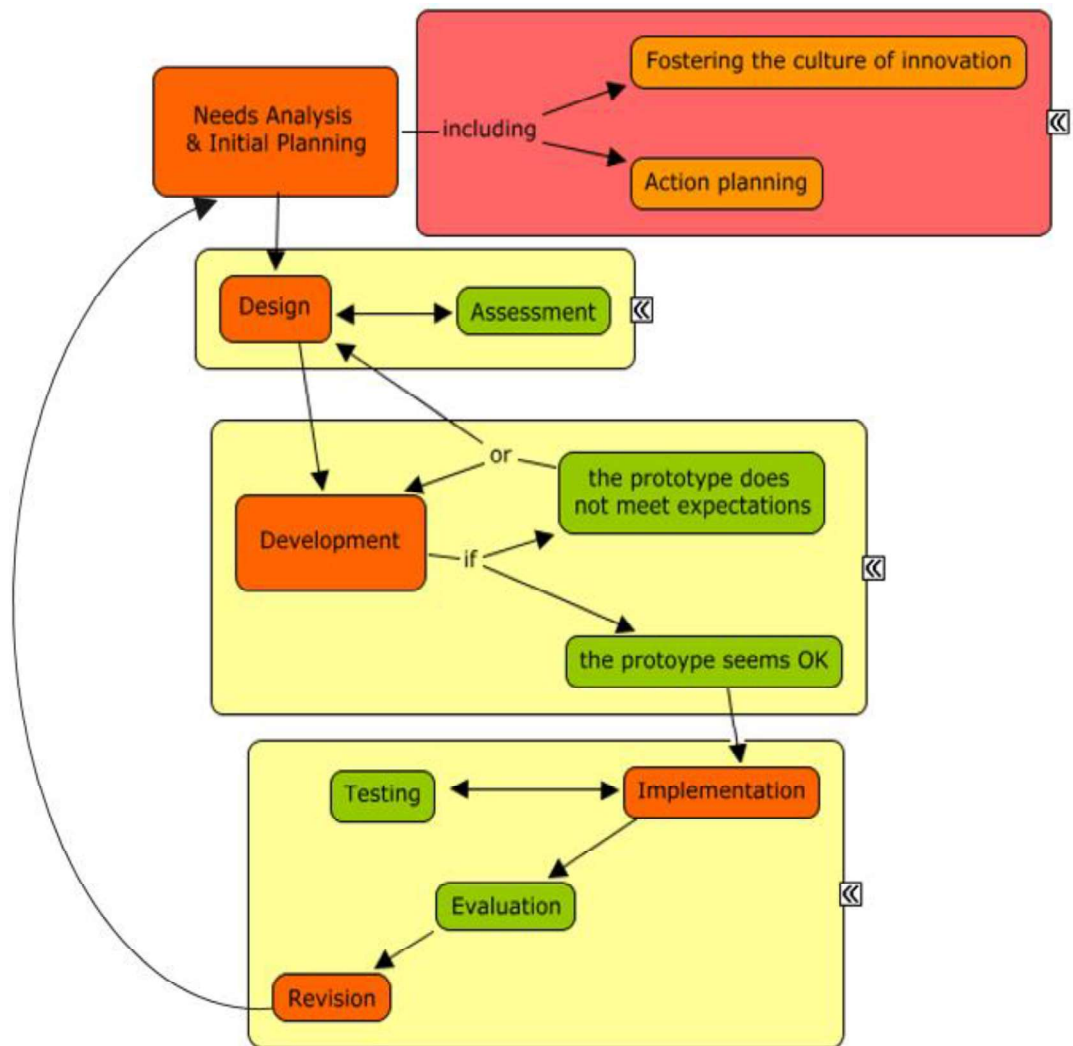

Figure 1. Enhanced ADDIE model. *Own made*.

Our model also highlights the importance of evaluation and feedback throughout the entire life-cycle –in order to impact the process as it is happening– and shows the importance of gathering and distributing information between all the phases. Besides, we would suggest the testing of a prototype containing all the major components of our course prior to the development of a large amount of teaching

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[1] *ADDIE*: Analyse, Design, Develop, Implement and Evaluate.

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materials. This will allow us to choose the most effective type of tools and activities as well as enhance usability.

It is unrealistic to aim at describing this process in full length in this article. Instead, we shall describe the preliminary steps for the sake of helping others facing the challenge of implementing an LMS for second language teaching from scratch. Namely, we shall refer to:

1. Carrying out a needs analysis.
2. Fostering the culture of innovation.
3. Action planning.

The needs analysis

The thing that matters the most when it comes to developing a learning management system is the convenience of carrying out a needs analysis which will, eventually, provide a means for sound decision making in order to determine the who, what, when, where, why, and how of a learning program.

Based on the characteristics of our centre and our pedagogical criteria, the needs analysis will help us define the scope of the project and the strategy to achieve the desired learning outcomes by setting the learning goals, describing the mode of delivery and quantifying costs.

This analysis will justify the feasibility of the project, for we need to make sure that our request to deploy a learning management system is consistent with the general objectives of our organization and both economically and technically viable.

Context analysis and cultural readiness assessment

Firstly, we are to describe thoroughly the current state-of-affairs (who we are, our potential, our goals…) for higher stakes within our organization to make sound decisions about future action and funding.

We must also collect data on ICT use and students and teachers' attitudes towards technology, as our planning to go online may be underpinned by teachers' beliefs about what information technology can do for their pupils and it also is dependent upon what they themselves believe they are capable of with information technologies. Every decision in designing an online course needs, therefore, to be determined by a thorough research of learners and instructors: their needs, expectations and their existing skills and competencies.

In this sense, among our findings, it must be pointed out that our students were astonished to find out our technological deficit: lack of computer rooms across campus, no use of media in the classroom by most instructors, chalk-and-talk instruction and paper assignments. To go along with that, apparently, for most students' and programme coordinators intensive ICT use was one of the main quality indicators of an educational program. And in that aspect our rating was simply 'poor'.

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SWOT analysis

One quick, straightforward approach for carrying out this needs analysis is an exercise to identify our *Strengths, Weaknesses, Opportunities* and *Threats* –in short, to implement a *SWOT* analysis. This will allow us to identify, record and organize our ideas regarding these four areas in our institution.

Strengths:
- Over 50 years' experience delivering Spanish Courses for foreign students
- Brand reputation in the fields of Humanities and Spanish Philology
- Existence of an Innovation Centre and a Virtual Campus
- Expertise in e-learning (not in L2 online teaching, though)
- Enthusiastic teaching staff
- Students' familiarity with ICT and e-learning practices

Weaknesses:
- Lack of computers and IT technicians
- L2 teachers' lack of training in ICT uses and good practices
- L2 teachers' little experience in distance education and e-learning
- Lack of job stability
- Lack of autonomy
- Time consuming

Opportunities:
- Institutional and political environments supportive of ICT: European Commission, Spanish University Rectors' Association…
- Funding: European funding, funding from the International Campus of Excellence…
- Self-financing: new source of income
- Existence of 'good practices' models (Coto Ordás, 2014b).
- Open source and low maintenance costs
- Niche business: Little competition by other Spanish universities
- High added value product

Threats:
- Small budget to hire staff or purchase material
- Can be seen as expensive (if not taking into account long-term benefits)
- ICT resistance
- Eventual withdrawal from the project by any of the teachers.

When approaching this task, it is helpful to think of strengths and weaknesses as being current conditions that are internal to the organization and threats and opportunities as future conditions that are external to the organization (Coto Ordás, 2014a).

Fostering the Culture of Innovation

Innovation is not just about using new tools and technologies in a professional or educational context but rather about developing a new organizational culture in the

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understanding that superior results emerge when strategies, business models, structure, processes, technologies, tools, and reward systems work in perfect unison (Salinas, 1999). This is what we call culture of innovation.

In more practical terms, we can start off by coming up with innovative initiatives matching one of the following lines of action: 1) new programmes; or 2) rethinking of an existing programme.

Novelty

We can start delivering new courses whenever we identify a high demand or a niche business, that is, by targeting a specific group of people with a common shared interest or profession. For instance, as nowadays companies expect more customer-oriented courses to train their employees we can start offering e-training to multinational companies upon demand. We can also implement lifelong training programs as well as blended language for specific purposes courses (i.e. language courses aimed at business people or medical personnel or, 'thinking out of the box', bird-watchers and wine-lovers).

Re-thinking of an existing program

We need to analyse thoroughly every existing program and question ourselves about whether they could be delivered in a more efficient way, attracting more students and cutting down costs.

For instance, we could rethink our intensive courses for exchange students, which currently start 3 weeks after they have arrived in Spain and offer them an online course prior to their arrival, which makes more sense. As a matter of fact, the EU encourages the development of European exchange and sharing schemes (virtual mobility) by building on existing co-operation frameworks such as the Erasmus program and giving them an e-learning component. Therefore, if we turn this threat into an opportunity, it could turn out that this may help reducing costs and would improve teachers' schedules.

As well as that, the *Diploma de Español como Lengua Extranjera (DELE)[2]* preparation courses, hardly ever launched due to the low number of students pre-registered, could be available online. Regardless of the number of people registered for every examination call, they could take the course and we could charge those students willing to have some tutoring or an online course with Skype teacher support with an extra fee. Furthermore, we could attract students from other examination centres as there are no many such courses available online.

Action planning

We need to draw up an action plan in order to succeed in our project. We must control a large number of activities and make sure that they are completed on

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[2] The DELE is a certificate stating the degree of proficiency of the Spanish Language. It is issued by the Spanish Ministry of Education.

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schedule. We may use a Gantt chart to include all of the activities needed for every project phase to be completed. Once we have listed all of these activities, we may eventually use a breakdown structure whenever there is a need to establish what the tasks are. Then, for every task, we shall note its earliest start date and its estimated duration.

Table 1. Sample Gantt chart. *Own made.*

	<year>	2015		
	<month>	October	November	December
	<week>			
- Creation of a working team (assigning roles to team members, setting deadlines, stating duties and responsibilities…)				
- Carrying out surveys among students and teachers. - Estimating potential demand. - Contacting with other universities, esp. those holding exchange agreements with our institution				
- Describing the characteristics of our target group (digital literacy, attitudes towards information technologies, prior e-learning experience…)				
- Selecting an instructional design model				
- Analysing different LMS environments for L2 teaching and learning (*Aula Virtual del Español*, *Campus Virtual FLE …*)				
- Analysing open software LMS (*Moodle, Ilias, OLAT, etc.*) and authorware (*Blackboard, Webex…*)				
- Creation of a document management system, a repository storing any records of the project alongside documents on pedagogy, instructional design, good educational practices, educational technology…				
- Contacting the IT services and the academic departments within our University with prior experience in e-learning				

Anticipating problems and addressing them

We may use a graded checklist approach to list any potential problems we can envisage or, alternatively, put them down on a table where we can arrange all the constraints and problems alongside possible solutions. The following sample for an on-line Spanish course could be a good example.

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Table 2. Listing of potential problems and possible solutions.
Adapted and translated from *Sáez Ávila & Atienza de Frutos (2004)*.

PROBLEM	SOLUTIONS
Some students may have no previous e-learning experience and may not be able to use the LMS tools: voice-recorder, chat…	Tutors should be trained in technical aspects. A demo, a tutorial and a FAQ section can be made available to students. A technical help-desk may be created, if necessary.
The success of an online learning environment is tied to its suitability in relation to the target audience. It is difficult to develop a course without knowing the profile of a typical online student, which may differ greatly from the one in a face-to-face setting.	We may gather information through surveys in order to profile potential online students. That study will eventually yield predictors and variables (age, nationality, income level, ICT literacy, prior online experience…), which will allow us to estimate potential enrolment demand, and to determine the appropriateness of the delivery method.
Learners may find the course boring and uninteresting.	Not everything should be left to 'drilling' (repetition/transformation/substitution… drills). We need to engage students by adding multimedia (videos, songs, animations, etc.), emphasize a problem-based learning, introduce a video-game approach (gaming), choose effective communication tools and use a wide array of teaching strategies.

Other constraints that could be listed might include the need for small group work, students' lack of familiarity with online learning or their unwillingness to take part in online discussions. We can list anything else we can think of, not just negative aspects, and keep the list handy as we move onto the design and development phases.

Technical aspects

We need to research thoroughly into any prior experience of online delivery in our field and tackle the issue of whether to create a Learning Management System from scratch in quite the same way as the Instituto Cervantes (http://ave.cervantes.es/en) did, using commercial packages such as *Blackboard* or using open source solutions as *Moodle*.

Contacting people administering LMS in similar organizations and gather information about their experience and lessons learned, may save us a lot of time by helping us anticipate for any problem.

At the same time, we can undertake an Internet search in order to get information on LMS from vendors' websites or research and comparison reports so that we create a list of LMS providers that would be a good fit for our organization.

Once we have shortlisted the number of LMS we need to develop some evaluation criteria, such as:

- Fit for purpose: Does it deliver a feature set that aligns with the requirements document?
- Architecture and usability: Does it satisfy scalability, robustness, modularity, security and hardware requirements? Is it user-friendly?
- Interoperability: Does it have ease of system integration and comply with open standards?
- Ownership, maintenance and support: What are the costs of development and support? How would you rate ease of maintenance? What is the strength of its community of users?

Strategic planning

Strategic planning is about setting priorities, making sure that employees and other stakeholders work toward a common goal, establishing agreement around intended results, and communicating our goals and the actions needed in order to achieve those goals. We need to put down all of this into several documents which we will disseminate among senior decision-makers within our organization (Vice-Chancellors, Manager, Deans…).

Besides, it is convenient to provide them with a solid financial report for them to manage figures regarding expected costs and return on investment. This type of information is to be broken down into different categories ranging from the internal costs of salaries or the infrastructure to the external costs, which are not so easily allocated. The more specific our financial report gets, the more successful the results.

Table 3. Cost categorization scheme for e-learning.
Doughty, Spector and Yonai, 2003: 2-3.

A. Planning Design and Development (one time expenditures)
1. Needs assessment - front end analysis - initial planning
2. Task analysis - job analysis
3. Curriculum design
4. Prototype development and testing
5. Formative evaluation - preliminary product and program review
B. Investment and Production (one-time expenditures)
1. Acquisition - Installation - Start-up costs
2. Procurement of initial stock of hardware and software
3. Duplication of production masters
4. Construction - Renovation of facilities
5. Purchase of initial spare components
6. Modifications of existing systems
7. Initial deployment of hardware and software
8. Server acquisition and setup
9. Web support system license(s)

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C. Replacement (one- or several-time expenditures)
1.   Replacement as a result of:
a. Obsolescence: Content, technology, strategy;
b. Depreciation: Normal use
c. Theft - vandalism - breakage
2. Periodic (scheduled or unscheduled) updating of:
a. Content - materials
b. Equipment
c. Procedures - management
D. Operation (multiple time/each cycle expenditures)
1. Personnel
a. Instructional: salary - travel - benefits (including retirement)
b. Administrative - managerial
c. Maintenance - support
2. Materials: consumables incl. regular updating and revision of instruction
3. Ongoing instruction, assessment and evaluation
4. Ongoing distribution and deployment of hardware, software and courseware
5. Facilities
6. Overhead: institutional indirect costs and special distance learning overhead

On those documents we need to imagine various scenarios, mainly pure online teaching or blended courses and evaluate their pros and cons. Modern online learning includes offerings that run the gamut from textbook-like information or conventional didactic lectures delivered over the Web to Internet-based collaborative role-playing in social simulations and highly interactive multiplayer strategy games. Each case allows for the evaluation of the risks of the project and should be accompanied by a preliminary statement of the costs and benefits of the scenario.

Alongside those scenarios we need to figure out a marketing plan compiling all the strategies that will be used to increase student enrolment in our courses and several fitted ways of commercial exploitation (licensing, direct use…).

Once the needs analysis has been undertaken and the constraints, resources, and limitations have been determined, it will be time to move into the following phases, but bearing always in mind that we need to start slow: running the course online, testing it, evaluating it thoroughly and making any necessary changes.

Conclusions

In this paper we have outlined a blueprint that describes the first stages of the planning and implementation of an LMS for second language teaching. In order to do so, we have revised and adapted the ADDIE model, an instructional design model which has withstood the test of time, for more practical use. Our approach seeks to build useful feedback and usable iterations by adding a revision stage to it and implementing the various steps in a cyclic fashion.

We have, then, turned our attention to a crucial stage in online planning, which involves carrying out a needs analysis, fostering the culture of innovation and action

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planning. We have provided hints and guidelines (SWOT analysis, evaluation criteria for an LMS, cost categorization scheme…) on how to tackle these issues from a practical point of view, given that stakeholders need to be reassured that tasks are to be completed effectively within a reasonable timeframe and at a reasonable cost.

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