Steps of Implementing an E-learning Programme in Superior Education

Gabriela Moise¹, Loredana Netedu¹, Liviu Ioniță¹

(1) Petroleum-Gas University of Ploiesti,
no. 39 Blvd. Bucuresti, Ploiesti, ROMANIA
E-mail: gmoise@upg-ploiesti.ro

Abstract
This paper presents a new definition of e-learning, as a blend of the traditional classroom-based learning with the internet-based one. It takes into consideration the fact that learning is more comprehensible than training, as it includes unintended and non-institutionalised learning as well. The authors consider the Internet technologies a means suitable for creating and delivering an instructional environment and not a purpose in itself. Taking into account the above-mentioned opinions, there are defined and described the steps to be used in implementing an e-learning programme in superior education, steps such as: establishing the target audience, designing the traditional lecture and its electronic version, as well as their curricula, establishing a relative, adaptive percentage of the two components involved, designing or/and accessing virtual communities related to the approached field, purchasing the necessary, most appropriate technology. An application, now in progress at the Romanian-English section, within Petroleum-Gas University of Ploiesti, is presented in the final part of the paper.

Keywords: E-learning programme, blended learning.

1. E-learning: An Ever-changing Concept

The term E-learning suffers a lot of definitions. It comprises online learning, virtual learning, web-based learning, and so forth. Nowadays, any computer is connected to a network, fact that implies using the term E-learning in a broad sense.

Therefore, we select some definitions of the E-learning concept.

“E-learning is the use of the Internet technologies to create and deliver a rich learning environment that includes a broad array of instruction and information resources and solutions, the goal of which is to enhance individual and organisational performance.” (Rosenberg, 2006)

“E-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or standalone computers and other electronic devices” (Naidu, 2006)

“We define e-learning as instruction delivered on a computer by way of CD-ROM, Internet, or intranet with the following features: includes content relevant to the learning objective, uses instructional methods such as examples and practice to help learning, uses
media elements such as words and pictures to deliver the content and methods, builds new knowledge and skills linked to individual learning goals or to improved organisational performance.” (Clark and Mayer, 2006)

The evolution of the information technologies has generated changes in the meaning of the term E-learning, and the directions of the computer science development have drawn new directions in the E-learning development. Experts of the instructional design, teachers, universities leaders and students are permanently challenged to adapt, reconfigure, redesign the traditional education so that it may cope with to the “e” era or, more recently, to the “m” (“m” for “mobile”) era. All the above-mentioned definitions state that there is an electronic medium of learning delivery, two definitions (namely, the first and the third one) focus on increasing the organisational performance, whereas the last definition also includes the instructional techniques and pedagogical content. In our opinion, E-learning consists in any type and form of learning delivered via electronic devices, be it intended or unintended, online or offline, synchronous or asynchronous, formal or informal learning. It can be better applied to adult learning, and, by combining face-to-face learning with E-learning, one may obtain what we call blended learning.

A sound learning is the one that satisfies the needs of heterogeneous groups of people, and, therefore, blended learning implies a mixture of different learning approaches in the attempt to obtain the best outcomes possible. We apply these strategies at our courses so that we may bring the liberty of expression from the virtual environment into the classroom. In the paper entitled Strategies for building blended learning (Rossett at al, 2003) the authors state that blending involves a planned combination of approaches, as follows: a supervisor’s coaching, participation in an online class, breakfast with colleagues, reference to a manual, online communities.

The criteria for determining the optimal degree of learning support are: learner’s characteristics, learning’s outcomes, learning’s activities, context of learning, hardware and software infrastructure, time management, teachers’ experience.

This paper will further present in detail the steps of implementing an E-learning programme used in our teaching activity.

2. Implementation Models Now in Use

The design of the online instructional system has been realised by a number of professionals in the instructional design of computer-assisted instruction (Kemp, 1994; Clark, 1995; Dick & Carey, 1996). There are a lot of models of ISD (Instructional System Design), but most of them are based on the ADDIE model (http://ed.isu.edu/addie/). ADDIE model consists of five phases, each of them having outcomes which become inputs for the next phase.

Each phase of the ADDIE model implies a series of steps that lead to the model’s application in the online instructional process. Briefly describing, the ADDIE model consists in: the analysis phase, within which the goals and objectives of the instruction are established, the learner profiles are identified, as well as the available technologies; the design phase, when the instructional process (strategies, techniques) is designed, the
development phase, in which the electronic courses are built, the implementation phase, when the instructional system is delivered, the facilitators, the trainers and the learners are trained, the evaluation phase, during which the quality of the product is determined and the collected feedback generates ideas to improve the system. MRK (Morrison, Ross and Kemp, 1996) model consists of nine steps:

1. identifying the instructional problems, and specifying the goals for designing an instructional program,
2. examining the profile of the learner that should be paid attention to during planning,
3. identifying the theme of the content, and analyzing task components related to the stated goals and purposes,
4. defining the instructional objectives for the learner,
5. sequencing the educational content within each instructional unit for a logical learning,
6. designing the instructional strategies so that each learner can reach the objectives,
7. planning the information delivery,
8. developing the evaluation tools to assess the objectives,
9. selecting resources to support learning activities.

The original diagram of Kemp model can be found at the address http://www.personal.psu.edu/users/s/j/sjm256/portfolio/kbase/IDD/images/kempmodel.jpg.

A comparative study on all these models leads to the following conclusion: most of ISD models have a systemic pattern. In the initial phases, the objectives are identified and the profile of the learners is defined. On the minus side of ISD models, one can mention the impossibility to mould the learning process while in progress.

Generally speaking, the E-learning programme implementation complies with the following steps: a preliminary analysis, consisting in specifying aims and learning outcomes, learners’ analysis and context analysis, programme’s development, its testing and implementation and programme’s evaluation and improvement.

3. Implementing an E-learning Programme in Superior Education

3.1. Definition

The programme that we intend to implement is in fact a blended learning programme. Here are some reasons for preferring it to of an exclusively traditional face-to-face course or an exclusively e-learning one: nowadays students get hired during university and, because of this, they do not come to classes or they do not have time to study; one may also notice a lack of motivation and void of interest as far as their education is concerned, but interest in using the Internet. It is a reality that students from the first years do not know how to learn, so their metacognitive abilities have to be improved.

We can attract students with more appealing courses, i.e. more flexible and provocative and less stiff, as the traditional lectures are usually considered.
3.2. Goal

Our goal is to use it in superior education so that we may increase students’ performances. Teachers are due to reach the objectives of the course in given conditions and in a specified time. A graphical representation of the most likely evolution of the students’ knowledge is represented in figure no 2. There is an initial state, that of the students’ previous knowledge and a target that is to be reached within a specified time, i.e. 14 weeks. In our opinion, an e-learning programme should increase the chances to reach the established goals, or, at least, to get the students closer to the target. \(O_1, O_2, O_3\) stand for courses’ objectives, and \(K\), for competence, i.e. knowledge and abilities, level.

Figure 2. Graphical Representation of Students’ Knowledge Evolution
3.3. Steps

In their rush to implement E-learning programmes, some educational organizations make mistakes because of the inadequate calculation of the financial, time or human resources. Much money and more time have been wasted in the attempt to achieve a successful E-learning programme. We propose a seven-steps methodology to implement an E-learning programme.

1. Analysis phase
   - Analysing the learning content. There are five types of content in learning: facts, concepts, process, procedures and principles. The primary types of content are called artefacts of knowledge. (Clark, Mayer, 2002)
   - Analysing the goals. There are two types of goals: to inform and to perform. The benefits of goals’ analysis and setting are: students are more motivated to learn, they will know why they have to learn a procedure and where they can apply it, all projects can be evaluated according to the results obtained by each student. At the end of a training session one can report the students’ outcomes related to the proposed goals. Nowadays, there is a lack of reports as regards the students’ performances.
   - Analysing human resources. To build an E-learning programme requires specialists from different areas: teachers, instructional designers, IT experts: web designers and programmers, software developers, computer networks and Internet specialists. In most cases a lot of E-learning projects have failed because of the lack of specialists. It is important to stress the fact that a teacher cannot be an e-course developer.
   - Analysing technologies. Don’t spend money on unnecessary technologies! Use the technologies already existing in your organizations to solve immediate problems and buy the technology you need in the present and near future! Estimate the software and hardware technology report on: space area, number of students, number and types of courses, multimedia content, number of staff, existing headquarters. One needs technologies to develop and deliver courses and to manage all E-learning programmes.
   - Analysing learners context and suitable pedagogical procedures. The context of the learning process may be: mental, social, technological, emotional, knowledge, and classroom context. (Moise, 2007) There are a lot of pedagogical procedures that can be applied in an E-learning programme: learning by doing (scenario-based learning, project-base learning, case-based learning, problem-based learning, role-play-based learning), collaborative techniques, blended learning. Our piece of advice is to use the most suitable procedure(s) for the given instructional objective and learner context.

2. Building the project plan
   The success of any project, an E-learning programme included, may be assured by a well-conceived plan. Use a project management methodology and use a project management information system! Any project has to be monitored from planning to operations. Assure a management team responsible for monitoring the whole project! Make a budget plan, estimate the costs of the E-learning programme’s development, implementation and maintenance! As for the pedagogical
strategies, use blended learning, combining the most appropriated procedures to assure the success of the learning process.

3. Building the prototype
A prototype is an instance of the project built for demonstrating the functionality of the process, in our case that of the E-learning process. The E-learning prototype is a basic version of the E-learning system. The prototype is used to assure the success of the E-learning programme, it validates all the techniques and strategies implied in the programme. Build a prototype of every e-course! Use a methodology to produce a good e-course and name an experts’ team to perform this! (Often the techniques to produce a film are used.)

4. Implementing the prototype on a small scale: a group of 20-30 students
Implement more e-courses from different areas and don’t forget to implement the management system! You have to manage a lot of entities: pedagogical resources, students, staff, educational plans, grades and registers, fees, financial information and so forth. In this phase the costs of the implementation (often neglected) may be estimated.

5. Evaluation of the E-learning programme
Evaluate the outcomes of the students and the objectives reached through the programme! Make a report regarding the incomes and expenditures!

6. The E-learning programme’s correction and extension of the project
Be sure that you allocate enough time for all steps of the project’s development!

7. Assuring the maintenance of the E-learning programme
The core of a successful e-Learning programme is the mode of training and learning using electronic devices. This paper presents a possible transcription of a traditional face-to-face lesson into a blended learning one.

4. Experimental Course
We are currently developing and implementing an E-learning programme in Petroleum-Gas University of Ploiesti. Following the above-mentioned steps, we have decided to use software and hardware technologies, as well as human resources already existing in our university in order to transpose a traditional Practical Course activity, namely Getting to Know You into a blended lesson.

4.1. Traditional Practical Course – English Description
The official description of the Practical Course – English Language 1, an obligatory discipline included in the educational plan of the Romanian-English Section (functioning within the Faculty of Letters, Petroleum-Gas University of Ploiesti), establishes four
types of specific competencies that are to be followed throughout university at this
discipline: getting to know and understand information, explaining and interpreting texts,
instrumental and practical competencies and attitudinal ones.
These are further detailed for each year, the competencies for the first year
including assimilating and applying grammar and vocabulary knowledge, expressing
opinions about the selected topics or the ones included in textbooks, receptive and
productive skills development and practice and developing team spirit, responsibility,
indulgence, respect towards others’ opinion. Although one may identify grammar lessons,
reading or writing ones, lessons of revision, a Practical Course activity is usually
designed as a mixed lesson, in which the students are given the opportunity to acquire,
enrich and apply English grammar and vocabulary in real or simulated contexts and in a
permanent interaction with their colleagues and teachers.
The students in this upper intermediate/advanced class are between the ages of
18-22. There are 13 female students and 2 male students. Because one of the two classes
starts at 8 in the morning, students are often quite sleepy, finding difficult to concentrate
and use a foreign language. Otherwise, they are attentive and really interested in
practicing their skills and lexis, let aside grammar they are not very “fond of”.
In the past four lessons the students have been discussing the issues of how one can
use language in his/her advantage for a better communication and overviewing the
indicative mood. They have listened to short extracts in order to match descriptions to
speakers and order some topics. They have been looking at vocabulary and expressions
related to introductions or describing other people, i.e. adjectives and nouns and they
have also been discussing style and register of oral or written accountants. They have
revisited a number of past tenses, including hypothetical past (third) conditionals (‘If he
hadn’t lost his job, he wouldn’t sold his house.’).
Next week the class will start working on a unit entitled “Can You Believe It?”
which includes as structure to be revised tenses in accounts and narratives, writing a
competition entry, error correction exercises, based on the grammar and lexis discussed
up to that moment.

4.2. Aims

To allow students to practise speaking spontaneously and fluently about
something that may provoke the use of words and phrases and grammar they have been
learning recently.
To give students practice in reading both for gist and for details.
To enable students to describe themselves and others, taking into consideration
verbal and/or body-language communication used in real or hypothetical situations.
To have students produce an account by organising information and using a
formal register.
4.3. Blended Lesson: Activities, Procedures, Timing

Note: the parts that may be transposed into blended learning are written in italics.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Aids</th>
<th>Interaction</th>
<th>Procedure</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm up</td>
<td>pictures, textbooks</td>
<td>PW (pair work)</td>
<td>T (teacher) tells students to look at 4 pictures presenting postures and match them to the description given.</td>
<td>2'</td>
</tr>
<tr>
<td></td>
<td>PowerPoint presentation, web modules</td>
<td>e-mentoring, e-learning classroom, forum</td>
<td></td>
<td>4'</td>
</tr>
<tr>
<td>Language practice</td>
<td>textbooks, body language</td>
<td>IW (individual work)</td>
<td>T tells students to use several adjectives and the ones they already know to speculate about sb’ s personality, including their colleagues.</td>
<td>5-10'</td>
</tr>
<tr>
<td></td>
<td>flash animation, web modules</td>
<td>CL (class)</td>
<td></td>
<td>5'-10'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e-learning classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-reading</td>
<td>textbooks</td>
<td>PW</td>
<td>T tells the students to speculate on the meaning of the expression “silent speech” and compare his/her opinion with his/her colleague’s and then read the introductory text to see who was right.</td>
<td>3'</td>
</tr>
<tr>
<td></td>
<td>PowerPoint presentation, text (PDF file)</td>
<td>e-mail, forum</td>
<td></td>
<td>6'</td>
</tr>
<tr>
<td>Reading</td>
<td>textbooks</td>
<td>IW</td>
<td>T tells the students to skim the article about body language in order to find a possible answer to its importance in everyday life and the way in which one can use it in his/her advantage. After getting the gist, the students are asked to read the text again for specific information, i.e. to identify If Clauses and some vocabulary items, they are to use in their own written sentences.</td>
<td>5'-10'</td>
</tr>
<tr>
<td></td>
<td>text (Word file)</td>
<td>online communities</td>
<td></td>
<td>15'-20'</td>
</tr>
<tr>
<td>After-reading</td>
<td>textbooks</td>
<td>CL</td>
<td>After giving the students possible tips for solving multiple-choice exercises, such as the elimination process, T gives students 10 minutes to work out the exercise on their own and then compare their answers in pairs.</td>
<td>15'</td>
</tr>
<tr>
<td></td>
<td>interactive web page</td>
<td>IW+PW</td>
<td></td>
<td>30'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e-learning classroom, forum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1

<table>
<thead>
<tr>
<th>Activities, Procedures, Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Listening</strong></td>
</tr>
<tr>
<td>tape, portable CD/ cassette recorder</td>
</tr>
<tr>
<td>CL</td>
</tr>
<tr>
<td>IW</td>
</tr>
<tr>
<td>PW</td>
</tr>
<tr>
<td>Students are given handouts with exercises to be solved while listening to the tape Big Boys Don’t Cry, about men’s and women’s different attitude towards the same stimuli. T asks the students to read the statements they are to identify as true or false while listening to the cassette.</td>
</tr>
<tr>
<td>T asks the students to check their answers in pairs and then discuss the woman’s view briefly.</td>
</tr>
<tr>
<td>12’</td>
</tr>
<tr>
<td>Students are announced in advance to participate in a particular class for a traditional face-to-face activity.</td>
</tr>
</tbody>
</table>

| **Introducing structure - Conditionals** |
| blackboard handouts |
| PW |
| CL |
| IW+PW |
| T tells the students to imagine their own reactions to the situations presented on the tape and discuss them in pairs using second and third conditionals. |
| With the “help” of his/her students, T synthesizes the structures on the board, asking for examples and revising introductory elements, word order and punctuation of the conditionals, mixed conditionals. |
| T asks the students to solve fill-in-the-blanks, multiple choice exercises and compare their solutions in pairs. |
| T invites three pairs of students in front of the class and asks them to mime in order for the others to identify and then imagine their reaction in imaginary situations such as: seeing a house on fire, having something stolen, going to live on a desert island. |
| 5’ |
| 10’-15’ |
| 10’ |
| 10’ |
**Table 2**

<table>
<thead>
<tr>
<th>Anticipated problems</th>
<th>Possible solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students may not be able to use correctly If-clauses structures.</td>
<td>I will correct them and permanently draw their attention about the structures synthesized on the board.</td>
</tr>
<tr>
<td>$T$ sends regularly (at a time that has been previously agreed on with his/her students) messages containing different types of exercises, examples, extracts from films, songs) etc.</td>
<td></td>
</tr>
</tbody>
</table>

5. Conclusions

Transposing a traditional activity into blended learning (especially for humanities) has proven to be a difficult task, because of the fact that it involves active participation of specialists from different departments and knowledge areas, technological support (that some students may be short of) and the time necessary to design it. Therefore, the implementation of an E-learning programme, following the above-mentioned steps, would prove more than useful and efficient.

**REFERENCES**

**Books**


**Internet Sources**


http://ed.isu.edu/addie/

http://www.personal.psu.edu/users/s/j/sjm256/portfolio/kbase/IDD/images/kempmodel.jpg