

# Design and application of a digital platform for the improvement of students' learning

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## Abstract

The purpose of the project was to create a multimedia platform, which by means of the strategy teaching of the case would enable monitoring of students' learning to be optimised, teaching materials to be improved and which would self-promote independent responsibility and independent learning. To that end, a four-stage working methodology was followed:

1. Definition of the skills profile of the organisational psychologist.
2. Establishment of the skills levels by course.
3. Use of the case as a teaching strategy.
4. Production of a multimedia learning tool that contains an organisation and business simulator (Learning e.OS) and a CMS (Content Management System).

## General area of interest of this innovation

This tool provides an innovative pedagogical resource for all students studying the subjects included in the organisations and human resources itinerary. The results of the implementation of the innovation experience with students taking the Human Resources Planning and Management course show that they quickly become involved in the various cases worked on, and acquire a higher level of development in some of the skills described in phase 1 of the project.

Furthermore, the tool itself can be used in the environment of other subjects and learning areas as they are a series of virtual businesses, which can be the context in which many processes (those we design) and situations arise. For example, among the options are an economic study of a business, a design for it in spatial terms, a legal study of its personnel or an external marketing process.

## 1. Objectives

The purpose of this project was to consider in depth the renewal of supervised teaching (ST) on Organisations and Human resources courses and to increase their potential as a learning environment that encourages the acquisition of the professional skills defined for the subjects. With this focus, the general objective of the project was to create a multimedia platform.

The specific objectives of the project were:

1. To increase the levels of understanding of organisational complexity by students studying the Organisations and Human resources itinerary.
2. To increase students' interest in and motivation for the subject.
3. To develop organisational supervision skills.
4. To increase interaction between students in order to increase their teamwork skills.
5. To promote independent learning and autonomy, using a multimedia medium.
6. To familiarise participants with new technologies

## 2. Description of the work

Our awareness of the real need to boost teaching activities with educational resources that encourage reflexive learning as a team of teachers of the subjects included in the Organisations and Human resources itinerary led us to consider undertaking a process for updating the teaching/learning methodologies. To that end, the decision was taken to reconsider the teaching objectives based on a broader and more enriching perspective. The focus of professional skills was reviewed, and the skills framework that would guide our work was defined based on this. The decision was also taken to redesign a learning resource that was not being used to its entire potential: supervised teaching (ST).

The cases method was adopted as the methodology for this resource. The project discussed in this chapter is the result of the learning and renewal that have been applied to the teaching activities over the last two years. New activities have been designed, new material has been produced to facilitate learning, and explanatory videos showing the processes carried out have been edited, etc.

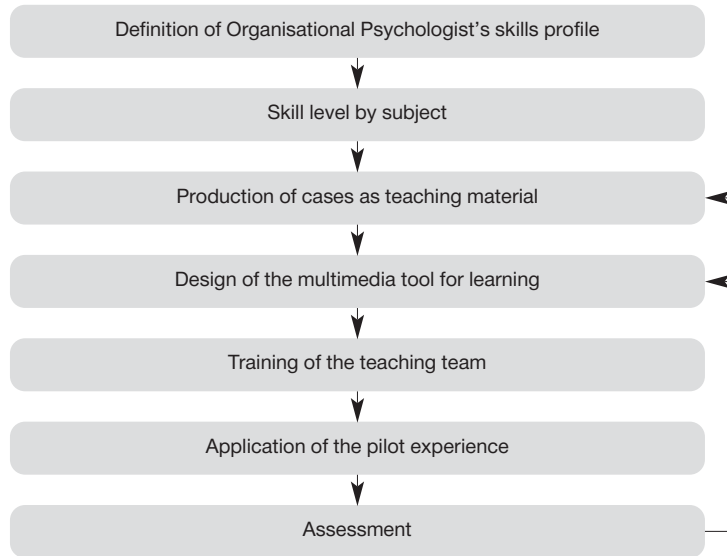
## 3. Methodology

The joint work by the entire team of teachers that will be involved in the management of this learning tool was adopted as the methodology of the project. This guarantees a general agreement in the proposals for change in ST and enriches the entire process with the experience and knowledge of the teachers involved.

The methodological design of the project was anticipated to involve 7 gradual phases, which would range from the definition of the transversal skills to be covered by

the various courses in the Organisations and HR itinerary, to an overall assessment of the results, based on which the teaching resources designed initially were altered.

Figure 1. Phases of the working process



The scope and description of each of these phases is described in the following section.

### 3.1. Definition of skills

The skills profile of an organisation intervention professional was defined during the 2003-2004 academic year, based on data obtained from various academics and professionals in the organisations world. The objective was to ascertain which skills had to be promoted in our learning spaces in order to make the development of students possible. The fifteen skills below were extracted from this process:

Table 1. Skills profile of the organisational psychologist

|                        |                 |                   |
|------------------------|-----------------|-------------------|
| Analysis and synthesis | Creativity      | Teamwork          |
| Negotiation/persuasion | Command of ISTs | Judgement         |
| Autonomy               | Client focus    | Systematic vision |

*(continued)*

|                       |                        |            |
|-----------------------|------------------------|------------|
| Obtaining information | Empathy                | Leadership |
| Communication         | Planning               |            |
| Organisation          | Flexibility-adaptation |            |

### 3.2. Skill levels per course

The subjects assessed were: Organisational Psychology, Planning and Management of Human resources and Intervention (Organisation). A series of transversal skills was determined for these, which were present in all three subjects, but at different levels. Other skills specific to each course were also established. The skills established for each course are shown below (Table 2).

By way of an example of the method used to establish the various levels of transversal skills, the contents of the «autonomy» skill is shown for each of the three subjects:

Autonomy (1) / Organisational Psychology: self-management in the specific classroom activities, with prior specification of objectives and criteria.

Autonomy (2) / Planning and management of Human resources: short term planning and performance of activities, by means of clarification of objectives and criteria, with teaching tutorials.

Autonomy (3) / Intervention (Organisation): specification of demands and definition of needs with teaching tutorials on the products. Assessment of results according to the criteria established by the students themselves.

This descriptive process was followed for the other fourteen skills identified in the Human resources and Organisations itinerary.

Table 2. Skill levels per course

| Type of skill | Subjects   |  |  |
|---------------|--|--|--|
|               | Organisational Psychology  | Planning and Management of HR  | Intervention (Organisation)  |
| Transversal   | Analysis and synthesis (1)<br>Communication (1)<br>Autonomy (1)<br>Planning (1)<br>Command of ISTs | Analysis and synthesis (2)<br>Communication (2)<br>Autonomy (2)<br>Planning (2)<br>Teamwork (1)<br>Command of ISTs | Communication (3)<br>Autonomy (3)<br>Teamwork (2)<br>Command of ISTs |
| Specific      | Obtaining information<br>Groupwork<br>Systematic vision  | Flexibility-adaptation<br>Empathy<br>Organisation  | Creativity<br>Leadership<br>Client-focused<br>Negotiation-persuasion |

### 3.3. Production of cases as teaching material

The decision was taken to work with the methodology of cases due to its educational potential, especially as a result of its ability to promote reflexive learning and facilitate understanding of complex issues (Andrews, 1960). The main characteristic of this teaching method is not based on the fact that it uses cases, but instead on the way it approaches them. This was the reason why we produced so much information that simulates reality, such as questions and exercises that enable questions to be asked about it.

Organisations described in great depth were created, and a web page created for them, as well as an intranet for each one (a gas company, an advertising company, a hotel, a town council, a medical centre and a shopping centre), and a complete guide was designed for each of the planned activities. These activities are organised in teaching dossiers. Each dossier covers the following pedagogical items:

1. Activities to be carried out.
2. Objectives of the activities.
3. Skills/levels focused on in the activity.
4. Result indicators.
5. Resources necessary to carry out the activities included in the dossier.
6. Definition of the methodology to be used (individual and/or group).
7. Description of the actions to be carried out.
8. Description of the tangible products generated after completion of the dossier.

While the cases took place, we endeavoured that they were all linked in some way, as interdependent systems, in order to promote understanding of organisations as open institutions, affected by their relationship with the environment in which they are located. Although each case enables a range of contents to be dealt with, we assigned each one a specific target theme, depending on the course in question (Table 3).

Table 3. Cases and subjects by course

| Organisation (cases)               | Subjects                     |                               |
|------------------------------------|------------------------------|-------------------------------|
|                                    | Organisational Psychology    | Planning and Management of HR |
| Vents del Mar Hotel                | Diagnostic Models            | Training                      |
| Bosc Profund Town Council          | Organisational Communication | —                             |
| Esfera Advertising Agency          | Organisational Culture       | The function of HR            |
| Gax, S.A. Natural Gas Distributor  | Leadership                   | Communication                 |
| Les Flors Medical Centre           | Quality of working life      | —                             |
| Rampa de les Flors Shopping Centre | Concept of Organisation      | Selection                     |

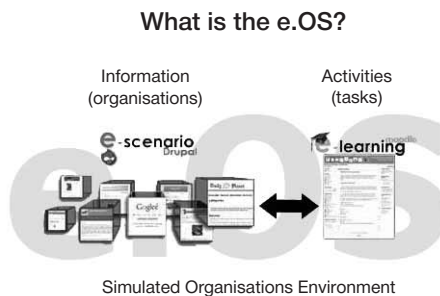
### 3.4. Design of the multimedia tool for learning

Guided by the objectives mentioned in point 1.3 and numerous analysis meetings, the multidisciplinary team which carried out this project reached the conclusion that the tool that needed to be created had to include the following requirements:

1. To provide a realistic approach to new technologies, in order to promote learning of the ICTs, but also to act as a motivating support for students.
2. To be easy to change and administer by the teaching staff teaching the course. The cases are «live activities», which change over time, according to the changing needs of the teachers and students.
3. Because it is a public development, it was necessary for the work done to return to the public sphere, and as such it was felt necessary to use open source software.
4. Access to the tool at any time and from anywhere.

Considering these needs, the proposal was consolidated as two different areas, but which were closely related: a simulator of business intranets (the cases) and a tool to facilitate teaching management (the campus). The resulting tool is e.OS: Environment of Simulated Organisations (Figure 2).

Figure 2. Generic Architecture of the e.OS



With the observation in point *d*) it was obvious that we were looking at a development that required web technology, but many details concerning the implementation of these two spaces remained to be resolved.

The first space, the e-scenario, had to contain the intranets of the organisations which would be the subject of discussion in the cases to be worked on (with discussion forums, web forms, videos, and audio), so it was decided to use the base provided by an open source management system called *Drupal* (Mansfield, 2007). This content management system facilitated the creation and customisation of websites by means of assisted panels and a web editor similar to conventional text editors (as suggested in point b), but the website resource needs meant that it was necessary to extend the content management system with modules that enabled audio, video, panels and

forums to be included. The aim was to achieve the realism mentioned in point a). In order to facilitate learning, it was decided to build two special additional websites. A search engine (called Goglé) and a newspaper (the Daily Planet) helped with the location of the teaching resources that we had included in the corporate intranets of the organisations in the cases.

Fortunately for the technicians, the implementation of the teaching area was a simpler task. An excellent previous development called Moodle (Rice, 2006) provided us with all the necessary tools for facilitating virtual teaching and assessment of our students. Moodle made a more individualised relationship between students and teaching staff possible and gave both groups unprecedented flexibility and independence in the management of their courses. With changes to the interface of our Moodle which were supported in the hyperlink, moving from one space to the other was a simple and transparent process. Thanks to Moodle, the courses are spaces managed by the teachers of the course, who can use simple panels to change its structure and contents.

Finally, we needed the help of an error management tool to help in the trial process and assist our teaching staff in the initial phases of implementation of the project. Mantis is another open source project that is a bugtracking system which enables users to report bugs and monitor them. No error is missed, and users are informed of the status of the problem which they have reported.

### 3.5. Training of the teaching team

Before the implementation of the platform as a resource, the teaching staff concerned took two training courses focusing on familiarisation with the use of the tool and its implications in daily management. The training received by the teachers was highly practical, although it included references of a general character to the characteristics of the tool used.

The themed blocs were ordered based on a cycle of actions that had to be taken in order to complete each of the activities (tasks) proposed. This cycle of actions dealt first with the point of view of the student (what the student could see and would be able to do), and then with the perspective of the teaching staff. In specific terms, the training sessions were based on a brief introduction to Drupal and Moodle, the computer resources that were combined to form the tool. Afterwards, all the steps were followed that the students themselves would have to take in order to:

1. create a user account on the platform
2. carry out the activities proposed
3. receive feedback from the teacher.

The way in which teachers had to resolve students' doubts and correct the activities carried out in order to give feedback was added to this. Finally, areas related to administration of the platform and the channels for dealing with problems were reviewed.

### 3.6. Application of the pilot experience

The first application of this new tool took place on the Organisational Psychology course (2006-07). It was initially considered a pilot experience which would provide information for adapting the tool and which would be the space necessary to practice our skills as teachers in this new methodology. The tool was also applied (only in the web spaces of the businesses) in the two groups (240 students) of Psychology of Work II on the Labour Relations course.

Before starting with the application of the tool on the course, the project was presented to the students in the first presence learning class, and all those interested were invited to participate in a training session. Thirteen students participated in this session. The training focused on a presentation of the tool, the creation of user accounts and the method for producing and receiving feedback for each task. Special emphasis was placed on the participatory and dynamic nature of this learning methodology.

### 3.7. Assessment

The team in charge designed the assessment phase of the experience with the following objectives in mind:

1. To assess the effectiveness of the e.OS as a learning instrument.
2. To provide a critical analysis of the nature and the structure of the activities according to their educational value.
3. To identify difficulties in the use of the tool, both in technical terms as regards contents and the student-teacher relationship.
4. To identify practices and conditions that promote an effective use of the tool.
5. To produce proposals for improvement for these to be applied in the next academic year.
6. To produce a guide of good practices in order to promote effective use of the tool.

As can be seen, the aim was to assess the functionality of the tool and the way it was being used, but the most important point concerns the type of work required of students, i.e. with the learning activities presented. Based on this question, interest concerned the assessment of to what extent these activities enable the contents of the subjects to be understood, the educational objectives specified to be grasped and above all, skills at the levels specified to be developed.

The assessment took place in such a way that it included the point of view of the team that had carried out the innovation project, the teachers who had participated in the pilot phase and especially the students who had used the tool, both in the supervised teaching of the Organisational Psychology course, as part of the Psychology qualification, and on the Employment Psychology II course, as part of the Employment Relations qualification. The criteria established for assessment were grouped in four large blocs, depending on the area of interest. These criteria are shown in Table 4.



The students' assessment took place in two ways: a questionnaire and a group interview. The questionnaire was answered using the e.OS tool, using the feedback activity.

The assessment by teachers and the team that developed the project took place in two phases: individual work and a working meeting. The first phase, of individual work, consisted of a review of the cases (the activities presented and the available information), work handed in by students and the feedback received by the teachers themselves. As mentioned at the start, the objective of this phase was to assess the type of activity that students wanted and its value as a learning medium.

Table 4. Skill levels per course

| Use of the tool   | Student-teacher interaction   | Quality of the materiall  | Educational usefulness   |
|---|---|---|--|
| <ul style="list-style-type: none"> <li>• Complexity of use</li> <li>• Time spent</li> <li>• Places of connection</li> <li>• Type of work</li> <li>• Difficulties noted</li> <li>• General assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Availability of the teacher</li> <li>• Assessment of response time</li> <li>• Means of communication used</li> <li>• Difficulties noted</li> <li>• General assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Clarity of instructions</li> <li>• Interest in the activities suggested</li> <li>• Appeal of the web pages</li> <li>• Sufficient amount and quality of information on web pages to complete the activities.</li> </ul> | <ul style="list-style-type: none"> <li>• Clear links between the theory and the cases.</li> <li>• Co-ordination of class-work with online activities.</li> <li>• Implementation of contents.</li> <li>• Usefulness as a learning tool.</li> <li>• General assessments</li> </ul> |

In the second phase, the comments made individually were shared, and data concerning use of the tool were gathered.

#### 4. Results

The tangible results of the project include the platform that has been operating since the pilot test in the 2006 academic year, which covers a total of three subjects, with three more being designed. The assessment carried out and the results of the experience show that the digital platform is an innovative and motivating pedagogical resource for all students taking the subjects included in the Organisations and HR itinerary.

The tool was rated positively as a good learning space by the students and teaching staff who participated in the assessment. These assessments are summarised in Table 5.

Table 5. Summary of the assessment pilot test

| Students' assessment   | Teachers' assessment   |
|--|--|
| Practical.   | Time flexibility for the teacher when using the tool.  |
| Useful for practical work.   | Time flexibility when giving feedback to the student on the practical session (corrections).     |
| Interesting.   | No accumulation of written material on paper.  |
| Dynamic.   | The tool enables creativity in the design and creation of materials (video, audio, films, etc.). |
| Entertaining: «you learn and you have fun».  | Attractive and motivating cases for students.  |
| It encourages learning   | Encourages involvement and commitment by students.   |
| An innovative way of learning.   | Strengthens the teacher-student bond.  |
| Interesting and varied cases, different businesses that make you think about employment situations «it's a dynamic and effective way to work, you have the information you want at any time and anywhere on top of that...». |  |

This assessment also enables us to ascertain the weak points of the tool in order to be able to propose improvements: Link the cases to a single web (business), position the audio and video resources more clearly, clarify the instructions, produce a web map and balance the time allocated to resolving the cases. In the courses following the pilot test, work has been done on improving all these aspects.

## 5. Conclusions

The group of teachers involved in the subjects in the Organisational Psychology field hope that in the medium term, they can provide evidence of an increase in the academic performance of the students involved in this pilot phase, which will be reflected in their academic grades. An increasing number of students wanting to participate in the practical sessions that use this platform as a medium has begun to be noted during the 2007-08 academic year. An increase in interest in the discipline in the organisational intervention field is also anticipated, as well as greater autonomy in learning and increased development at all levels of the skills involved in each course. The grades obtained by the students suggest that this is indeed occurring.

There is also improved knowledge by teaching staff of the new technologies as applied to the field of human resources.

In view of these results the team asked for another grant, to cover work up to the 2008 academic year on the needs for improvement noted and the creation of new courses for all the Organisational Psychology subjects that take place in other courses (Socio-Employment Auditing) and work sciences.

We are aware that there is still a long way to go, but we are convinced that we must continue working in this area of methodology in which the student rather than the teacher plays the active role if we want to provide training for skills.

## References

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- RICE, W. (2006). *Moodle E-Learning Course Development*. Birmingham: Packt Publishing.

## Interesting links

Our Moodle space is at:

- <http://psicologiasocial.uab.es/campus> [2008]

Our simulated organisations can be found at:

- <http://psicologiasocial.uab.es/eos2/>[name of the organisation: *agency, town council, project, commercial, medical, hotel, etc.*]

## Keywords

Innovation, new technologies, learning and motivation.

## Financing

AGAUR round (University and Research Grant Management Agency): Grants for financing projects for the improvement of quality in Catalan universities for 2004 (MQD) File No: 2004-MQD-00069.

## Supplementary materials on the CD-ROM

Demonstration of the application of a digital platform for working with case methodology in Psychology of Organizations.

## Project leader

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## Presentation of the working group

The working group presenting this project is part of the group of teachers and technicians in the Department of Social Psychology. We have been working on various projects related with teaching innovation and the improvement of learning processes since 2002. Among the projects undertaken have been the creation of an educational video on Assessment Centres, as well as a video for teachers explaining the objective and the phases of the «La Fira» experience for Labour Relations projects; and the management of projects such as «Design of supervised teaching activities for the improvement of learn-

ing in the organisational field» and «Resources for continuous training, professional guidance and employment placement for students in the Faculty of Psychology», as well as the creation of cases and material for working on professional skills.

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