

Chapter 66

A Math E-Learning Course to Improve Pupils' Performances

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ABSTRACT

This chapter presents an e-learning teaching/learning activity to support the traditional activities at school. It was developed as a part of a P.O.R. project (Piano Operativo Regionale) of the Regione Sicilia for the Mathematics subject. The experiment was conducted at Libero Grassi school (Istituto Tecnico Commerciale Statale) in Palermo, Italy. The designated e-learning platform is the open source system, Moodle. The main purpose of the formative activity is to reduce students' educational gap, which may generate "educational debits" at the end of the school year. If the students do not overcome these debits, they are not admitted to the next year. This activity took place during the second four-month term of the 2010/11 academic year. Results were excellent; no students had any educational debits. There was also an improvement in the students' attitude towards the subject in the collaborative and cooperative approach between the students and the teacher. It was also positive for the rest of the class.

INTRODUCTION

This e-learning platform has been used for a year in the Libero Grassi school based on the open source system Moodle. The main purpose is to introduce this new modality into the traditional one in the educational syllabus. At the moment the platform is mainly used as a mere repository, and poorly used as an active e-learning instrument. This is due not to the students, who do appreciate

this didactic strategy, but to a lack of expertise and the diffidence that several teachers show using the new technologies and not due to the students, who have appreciated this didactic strategy. Last but not least, additional duty is required for teachers who are using the platform, without any economic or normative reward.

In order to bypass some of the problems described, a new project has been designed. It is totally online with the exception of the first

DOI: 10.4018/978-1-4666-2122-0.ch066

meeting for the presentation of the activity where the procedures and the final tests are presented. The project involves students from a third level class (pupils of around sixteen years old) of the Institute, and uses most of the features of Moodle. This activity is also meant to be a reference for the teachers of the Institute in order to plan similar activities for other subjects.

Libero Grassi ITCS (Istituto Tecnico Commerciale Statale) of Palermo is situated in the northern periphery of the city. There are around 600 students from a mid socio-cultural level distributed in 30 classrooms. Around 25% percent of the students are from small towns to the west side of the city: Isola delle Femmine, Capaci, Carini, Torretta, Terrasini. Generally these students travel to the school using public transportation, which in the afternoon is less frequent, or suspended when remedial courses or extra curriculum lessons are taking place. Furthermore, in many cases, some students need to attend different didactic activities. To meet their needs, relieving them from many logistical problems, it was decided to set an e-Learning platform in the Institute to be used as a support to traditional activities, for remedial courses. In fact, through a platform of e-learning, content can be enjoyed at any time and any place where there is a connection to the network, expanding the boundaries of time and space and effectively nullifying the distances.

The experience described in this paper was in one third level class (3rd A), composed of twenty 16/17 years old students, five of whom were pupils repeating the school year. The group in terms of learning consisted of 7 very weak students, with low motivation and insufficient progress, a second group of 9 students with good motivation and sufficient progress, and a third group of 4 students with high motivation, a willing attitude toward the subject and with high progress (Table 1). The activity was financially supported by the Regione Sicilia, since it belongs to the P.O.R. (Piano Operativo Regionale) projects.

Table 1. Class starting point. The mark six shows a sufficient evaluation on a scale from 1 to 10.

Vote	%
4/5	35%
6/7	45%
≥8	20%
Average vote = 6,3	

As a result of a survey of the educational needs from a didactic point of view, conducted by the leading teachers of the school named “Support for the fulfillment of the educational success” having as its aims the analysis of the educational needs and the management of the upgrade plan, the school has set up, as an experiment, an e-learning platform implemented with the Open Source software “Moodle.” The final purpose is to put the e-learning activity into the P.O.F. (Piano dell’Offerta Formativa) for the Institute as a teaching/learning modality that can effectively support the traditional one.

In the e-learning term, the first part (the “e” of electronic) underlines the use of the Web and of digital technologies (like e-mails, e-commerce, e-citizen, etc.), while the second part indicates, at a psycho-pedagogic level, the centrality of learning.

E-learning was born as a natural development of distance learning in synergy with the development of ICT and Internet, taking from them the following advantages:

- Enrichment and improvement of teaching quality with the use of multimedia and interactivity.
- An improvement of the flexibility and the accessibility of educational content. Content can be obtained any time and place where a network is available, widening the time-space boundaries, and removing distance.
- Easier formation of learning communities (virtual classrooms) through network com-

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