

## Implementing e-learning practice in multinational educational Master's degree programmes

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**ABSTRACT:** E-learning increasingly is becoming favoured in higher education because it improves the quality of education and offers multiple possibilities for information dissemination. Reported in this article are data collected during focus groups at several European Intensive Programme sessions that presented different Master's modules. These programme sessions held in Germany and across Europe had participants from several European universities. The theme for the programmes was *European Construction with Quality and Safety*. Data regarding e-learning practice and methods of implementation, such as the teaching - learning - evaluation and pattern/model for the course delivery based on a specific curriculum, were collected and summarised during the focus groups by individuals, who included the professors involved in the programme. Based on the research regarding e-learning practice and the traditional teaching method, conclusions were drawn regarding teaching materials, project preparation, introduction of creative/innovative teaching techniques, and development of an accessible e-platform.

### INTRODUCTION

Presented in this article is an approach to a methodology for evaluating e-learning for Master's modules existing in a multinational and interdisciplinary collaboration in the European Union. Both professors and students from different universities participated in the European Intensive Programme and investigated the place of e-learning in Master's degree education.

The article is based on questions raised in the Institute for Higher Education Policy's report from the USA, on an analysis conducted on the efficiency of e-learning programmes and that asked *what researchers in the field are telling us and what they are not telling us*. Information was also sourced from the manuscript entitled *Provocări pedagogice în proiectarea programelor de elearning* [1] (Pedagogical challenges in designing e-learning programmes). Questions regarding the implementation process for e-learning in the Master's modules of construction management are considered in this article.

### THEORETICAL AND PRACTICAL RESEARCH: RESULTS

Nowadays, e-learning practice is part of the educational field and is increasing in amount and complexity. It is a long step by step process given that educational systems have a diversity of activities and products. The main phases of e-learning should relate to teaching - learning - evaluation, being the basis of education along with a number of problems posed by the development of assisted computer training.

Referred to in this article are Master's modules belonging to the European Intensive Programme, in which several European Union countries participated, with such themes as *European Construction Practice, Urban Space and Tourism* and *European Construction with Quality and Safety*.

During the programme several meetings were organised, which aimed to establish: the educational methodology for the three phases mentioned above; the available support; the appropriate amount of e-learning; the syllabus and the details regarding the development of the Master's modules for a course on European Construction with Quality and Safety.

Focus groups were organised, in which teachers from the university centres involved in the European Intensive Programme, established, among other aspects (such as curricula), those referring to the methodology addressed in the higher education system, with answers to questions for the four phases of teaching - learning - evaluation - dissemination:

1. What percentage of the phases makes use of an e-learning system?
2. How much time is necessary to provide an introduction to the system in each phase?

3. How to apply it in practice?
4. How to use the system for the dissemination of material?

Nine professors from the universities involved in the programme participated in the focus group for the study. Although the e-learning system has been practised for many years, especially in the USA, it is still approached with caution. Referring also to previous Master's degree programmes, where mostly the same professors participated, the unanimous opinion was that the preparation of the teaching materials is desirable in the e-learning system, so that both professors and students could be acquainted with these materials before the actual start of the programme. They could, then, interpose comments/observations, which ultimately could result in all the participants agreeing upon the teaching materials. It is considered an advantage that the students later will be able to add the required domestic (national) content; therefore, they will be prepared in outlining the topics.

It was agreed and considered appropriate that dissemination in the e-learning system should be prepared in such a way that results from the Master's degree programme (which includes original projects by the participating students) could be used to educate a great number of interested students from the partner universities.

The e-learning system can be developed to include *the preparation of teaching materials* and their *dissemination* but it still only partially includes the *learning* process, because the traditional methods of teaching are considered useful as well. This requires that professors and students from different countries work together, with the possibility of direct conversations and joint programmes providing the opportunity to learn about participants' cultures and countries. Mixing the two methods, in this case, was considered optimal.

The multinational Master's degree programme is designed around modules for recognised disciplines, having five (5) to seven and a half (7.5) ETCS (European Credit Transfer and Accumulation System) points, with similar disciplines included in the Master's degree programmes from the partner universities, where usually the evaluation method is a traditional one. It was considered that implementing the e-learning system at this stage would involve extra studies and require more financial resources.

Preparation for the introduction of the e-learning system in each stage depends on the equipment at the university that is running the Master's degree programmes, and on the involvement and availability of those who are part of the programme. Hence, these elements already should be very familiar. Following the synthesis of responses, it was necessary to be more involved in preparing the training materials. Therefore, the curriculum below was produced for the module, *European Construction with Quality and Safety* [2]:

1. Construction Projects and Information Flow (EU - Project);
2. National Regulation Norm and International Practices in Construction;
3. Benefits and Barriers to Free Trade and Labour Movements (Education, Professions);
4. Quality in Construction;
5. Quality Management, Quality Assurance, Quality Control and related Project Management;
6. Construction Environment and Technology;
7. Benchmarking and Best Practice in Construction.

Teachers conceptualised the training material for each topic, which was then posted on site so that other professors involved in teaching could add/modify to improve its quality. This phase was limited to a certain number of weeks and after that, each course support system, along with the project theme, became accessible for future students as well, who also used the site to access the general daily timetable:

- 1.5 hours – lectures information,
- 1.5 hours – group work (session one),
- 2.0 hours – group work (session two),
- 2.0 hours – presentations-discussions/evaluation.

The programme was personalised for each day of the two weeks of the Master's module development at the University of Applied Sciences and Arts - Faculty *Bauwesen* Holzminden, Germany. Other participating universities were:

- Technological Education Institute Piraeus, Piraeus-Athens, Greece;
- University of Granada, Granada, Spain;
- Oulu University of Applied Science, Oulu, Finland;
- Technical University of Cluj-Napoca, Cluj-Napoca, Romania;
- Kingston University, Kingston, United Kingdom;
- Technical University of Koszalin, Koszalin, Poland.

During *lectures information*, the professors presented the teaching material that had been prepared and already given to students through the e-platform. The e-platform had been created and so students were able to access the teaching material and pose a number of questions that were answered during the *group work (session one)*.

The *group work (session two)* session was based on:

- the projects theme;
- teaching material studied, which was provided through the e-platform and presented later;
- participants' knowledge gained from already-known requisites;
- students, divided into multinational groups, and who prepared several projects.

The projects' digitised content was improved quickly through the contribution of the other participating groups and the professors' involved in the *evaluation* process. The brainstorming technique as a creative method in problem-solving led to a good result. Table 1 presents the effect of the e-learning implementation in the main stages of the Master's programme.

Table 1: E-learning system implementation.

	Stages	E-learning %	Traditional method %
1	Preparation of teaching material	100	-
2	Lectures information	50	50
3	Group work (session one)	30	70
4	Group work (session two)	60	40
5	Presentation-discussion	40	60
6	Evaluation	-	100
7	Dissemination	100	-
	Total score 700 of which:	380	320

The scores in Table 1 show that the e-learning system was implemented successfully for the preparation and dissemination of the Master's degree programme. The partial use of traditional methods of teaching/learning was necessary so as to achieve interaction between students and professors from multinational groups and to give students opportunities to work together, as well as to highlight knowledge specific to different countries and cultural influences.

Table 2: SWOT analysis for e-learning system implementation.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- easy exchange of ideas and information, without the involvement of the other participants;</li> <li>- the ability to work under a flexible schedule;</li> <li>- the elimination of any external stress factor;</li> <li>- current forms of teaching can be adapted to the e-learning system;</li> <li>- interactive solutions between students and professors, with positive impact on students, using the video development method [3];</li> <li>- the dissemination and acceptance of this system is fast and efficient;</li> <li>- the students can be sensitised to this system, compared to the traditional one;</li> <li>- the universities are approached to improve the know-how;</li> <li>- compatibility with the demands for innovation and technological transfer in education.</li> </ul>	<ul style="list-style-type: none"> <li>- the need to evaluate the e-learning system content;</li> <li>- professors need to train in order to work with the students on-line; they need to work with the computer and the Internet;</li> <li>- insufficient experience of the system, by both professors and students;</li> <li>- the assessment and certification of the graduates and postgraduates is not yet mastered;</li> <li>- for technical subjects with practical applications, the adaptability of the system is more difficult;</li> <li>- requires multiple and expensive phases;</li> <li>- difficulties in introducing new technologies;</li> <li>- financial resources for the introduction of new educational systems compared to the traditional one.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- the current period is open to innovation in education;</li> <li>- the availability of on-line support;</li> <li>- use of the Internet by students is widespread;</li> <li>- e-learning enables rapidity in the initiation and transmission of novelty in the field;</li> <li>- exchange of information can be done quickly and easily;</li> <li>- market demands for superior qualifications of the human resources;</li> <li>- courses easy to access;</li> <li>- long-distance learning can be employed and can include a large number of students;</li> <li>- developing partnerships between companies and universities.</li> </ul>	<ul style="list-style-type: none"> <li>- libraries and information sources still insufficient;</li> <li>- need for early stage experimental phases for the verification of the system at all levels (teaching, learning, evaluation, etc);</li> <li>- the opinion of the majority of students regarding e-learning, is not well known;</li> <li>- adaptation to the new system by both professors and students is still difficult;</li> <li>- computer-aided teaching requires more profound studies;</li> <li>- expansion of the e-industry requires investment and budget allocation for multimedia technologies development.</li> </ul>

The assessment of the students using the e-learning system was not sufficiently studied. Therefore, the overall assessment of the programme was based entirely on the traditional method. The diplomas were awarded to students in a festive environment. At the top of the diplomas (the header), all the participating universities were listed and the certificate was signed by all of the teachers involved in this European Intensive Programme.

To determine future strategies for implementing e-learning practice in the multinational education of Master's degree programmes, analysis based on SWOT (*Strengths, Weaknesses, Opportunities, Threats*) is highly recommended [4]. Based on the studies of the methods employed in the Master's module, *European Construction with Quality and Safety*, some of the internal factors of influence were identified in *Strengths* and *Weaknesses*, and some external factors in *Opportunities* and *Threats*. They are presented in Table 2.

Based on the study carried out, the conclusions that were considered and developed for future multinational Master's degree courses are summarised below.

## CONCLUSIONS

The conclusions regarding this project are that in such multinational programmes as those considered in this study, it is important that a part of each programme includes the e-learning system, as this brings quality into the educational system. However, considering that in multinational groups of students, the face-to-face communication is itself a plus in developing the so-called *Aha effect*, in which one cannot exclaim unless one sees, the experience of the three programmes studied on the Master's modules, suggests:

- to combine e-learning practice with the traditional teaching method;
- to use focus groups that include professors to establish to what extent the new system is to be implemented;
- to prepare teaching materials entirely made in the e-system, including the existence of a platform to which all participants (teachers and students) have access;
- projects for the multinational study groups could be characterised by: clarity in description, visual presentation, ability to generate questions, technical suggestions, remarks, etc;
- to introduce creative/innovative techniques for problem-solving to students' subjects, such as brainstorming or other methods (e.g. synectics, lateral thinking, etc) that, through dissemination under close monitoring, should train a large number of participants thus increasing interactivity;
- at the end of the Master's module, generate e-platforms that contain teaching materials and projects developed according to the curriculum, that are available for access to interested graduate students from the participating universities.

## REFERENCES

1. Istrate, O., Provoacări pedagogice în proiectarea programelor de elearning. *Elearning Romania*, 79/2011, Bucureşti: Institutul Pentru Educaţie (2011).
2. Domsa, J. and Anastasiu, L., Post graduate courses in national and trans-national system. *Proc. Inter. Seminar on Quality Manage. in Higher Educ.*, 8-9 July, Tulcea, Romania, 425-426 (2010).
3. Diecker, L.A., Lane, H.B., Allsopp, D.H., O'Brien, C., Butler, T.W., Kyger, M., Lovin, L. and Fenty, N.S., Evaluating video models of evidence-based instructional practices to enhance teacher learning. *Teacher Educ. and Special Educ.*, 32, 2, 180-196 (2009).
4. Hockley, A., *Educational Management*. POLIROM Iasi (2007).