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# Online Teaching Methodologies in Higher Education Credit Mobility Courses: ErasmusX pilot project

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**Abstract**— Based on Erasmus credit mobility programs, ErasmusX is a project envisaged to offer students the possibility to add value to international exchange periods by combining online certified studies with further professional or academic experiences abroad. However, differences between national higher education systems and teaching styles can lead to issues concerning the recognition of credits, which makes necessary to establish common basic procedures. For this purpose, five different European Higher Education Institutions which have traditionally based their academic organization in the face to face credit system, have joined to develop on-line certified courses on several pre-defined areas following common practices. Bearing in mind this purpose, this communication focuses on the proposal of key pedagogical models, approaches and strategies to consider when designing online courses for mobility students. The revision of existing practices underline that online teaching requires not only an adjustment of the role of professors and students, but also a different structure of the courses based on a flexible online instructional design. The methods and models revised in this preliminary study point to the need of incorporating a collaborative online teaching approach with processed educational technology in English mediated instruction.

**Keywords**— ErasmusX project, online courses, Higher Education credit mobility, instructional design, collaborative online international learning

## I. INTRODUCTION

This pilot study revises instructional design models and experiential methodologies with educational technology in order to propose a normative framework for online teaching in European higher education (EHE) exchange programs.

Unlike current mobility programs, ErasmusX project has been designed to allow students do placements abroad overcoming incompatible course schedules studying at their pace and most convenient time, following a formal online learning approach. The project expects to allow universities to open curricula for placements, thus ensuring more employability, the acquisition of essential professional skills in a foreign language, linguistic diversity and intercultural awareness. However, the development of courses in online

environments involves an exhaustive readjustment process and the implementation of different methods than those used in traditional EHE face-to-face teaching. These new practices contemplate the teacher as a bilingual expert not only in different teaching and pedagogical strategies, but also with knowledge in current educational technologies.

When professionals consider the development of a new networked global course, they should follow specific learning technologies and learning theories in order to design and develop quality training and develop academic and professional skills [6], [16], [12]. There are different instructional models such as Gagné & Briggs, Dick & Carey or ADDIE that have been acknowledged to guide in the teaching process and which are usually required for the design of online learning following different didactic strategies [2], [3]. Based on these validated instructional design models and methods, this study will analyze and select the most appropriate and effective ones to be applied in ErasmusX program. The objective is to present concrete methodological guidelines for teaching different online courses from diverse EHE areas as illustrated in fig.1.



Fig. 1 e-learning methodological pilot in ErasmusX

## II AIM AND METHOD

This paper aims to generate an outline and create a transnational common understanding of the necessary approaches to be developed in European credit mobility courses in order to obtain recognized credits by the sending and receiving universities. For this purpose and taking into account the diverse perspectives, it is necessary to identify which are the basic procedures in order to indicate the strategies that may help develop them. Therefore, this study will consider the following research aims as a guide for exploration:

1. To revise main conceptual instruction design and methodologies applicable in higher education considering educational and institutional perspectives.
2. To identify key procedures and categorize them within the examined models for implementation and appraisal.

The methodology of this study is based on an instructional proposal for scoping studies towards a procedural framework [1]. In order to guarantee that the final emerging outline has a founded basis, the theoretical review has been carried out in line with the research aims of the paper. This process consisted of revising conceptual frameworks and models applicable in e-learning and higher education with educational technology taking into account traditional instructive, institutional and mobility perspectives [10].

## II. RESULTS AND DISCUSSION

The aim of this paper was to revise and identify key methodologies to establish a procedural model for credit mobility online courses. According to the literature review, ADDIE stands as one of the basic, and most widely used instructional design models [17]. E-learning designers have acknowledged that it helps structuring and planning their training since it presents, in a systematized adaptable frame, the major components that have to be included in a course [13]. We agree with several authors [9] that this model promotes constructivist learning and has been considered a flexible, interactive instructional design process in educational technology where teachers from different areas can adjust any of the phases to their specific practices.

The traditional in situ European credit module system differs from online teaching in diverse aspects such as the need to restructure existing courses based on conventional methodologies. This involves a change in the role of the teacher, who now becomes the designer of contents with the need of integrating educational technology and multimedia. To address this challenge, online educators in higher education need to provide professional instructional strategies which include time management, modeling, coaching, scaffolding, feedback, etc. Curriculum requirements and student progress are expected to be monitored in communication with learners and stakeholders upholding intercultural awareness and participation [7].

Distance learning should also ensure student commitment in online learning environments [4]. The e-learning engagement design (ELED) facilitates different forms of collaborative and personalized teaching through diverse didactic communication strategies for appropriate online learning [14], [15]. This can be achieved following ADDIE model as illustrated in table 1.

TABLE I  
METHODOLOGICAL PROPOSALS FOR CREDIT MOBILITY ONLINE COURSES

ADDIE Model Phases	Methodology	Procedures
<b>Analysis</b> The initial step analyzes the student previous knowledge, content and environment and the training needs.	Czerkowski & Lyman (2016) Coll et al. (2008) Oliver (2006)	Initial Assesment: - Perception questions - Content questions - Open ended questions
<b>Design</b> Development of the course program focusing in the pedagogical approach, the sequence and organization of the contents	Jonassen (1999) Val & Soluski (2017) Wade & Wickersham (2009).	-Methodological revision -Institutional learning platforms
<b>Development</b> Creation and production of the content and materials learning based on the design phase.	Vai & Soluski (2017)	-Readjustment of face to face subject contents -Use of open content resources
<b>Implementation</b> Execution and implementation of the training action with the participation of the students.	White & Weight (2000), Oliver (2006).	-Institutional & external learning platforms -Discussion Forums -Collaborative Social media -Web apps.
<b>Evaluation:</b> Formative & summative evaluation	Coll et al. (2008), Shelton and Saltsman (2006)	-CM Tests -Peer / self / tutor assessment -Discussion Forum -Essay -Tasks -Seminars -Verification questions

As proposed above, instructors need to focus on specific components in order to implement a shared effective credit mobility online teaching.

In order to explore potential learning constraints, delivery options and educational deliverables within the schedule of the program, an **analysis** of the student's prior knowledge with tutor, self-, peer- assessment and feedback should be conveyed [2]. This initial assessment can be carried out with perception, content and/or open ended questions tools using technologies such as PowerPoint, Excel, pie, line, histogram, or scatterplot in order to adapt the course to the specific needs.

Credit online EHE involves the **design** and development of the course with a different organization of the modules and contents adapting lessons to the timeframe of the program as shown in Fig.2. Contents can be taught in real time or asynchronous.

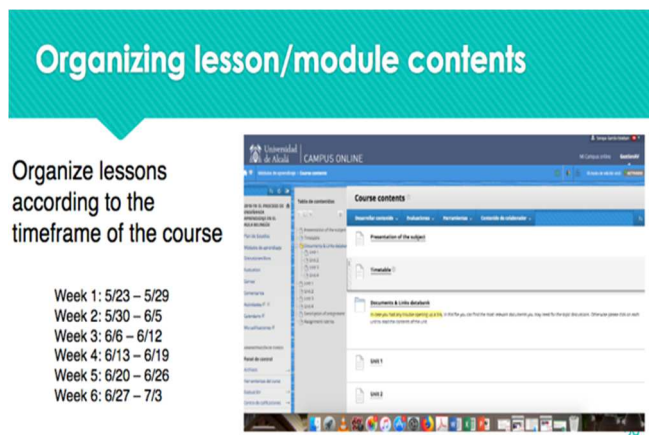


Fig.2. Categorization of contents in online teaching

Likewise, online course design should take into account diverse e-learning methods which involve innovative practices using digital collaborative educative resources and tools [18] with institutional learning platforms (i.e. Blackboard, Moodle and Federica Web Learning) for structured synchronous or asynchronous teaching.

Based on the design phase, the **development** of contents and the **implementation** of the instruction require a readjustment of face to face subjects with different educational technology resources and strategies [14], [15]. This implies integrating reflective tasks such as discussion Forums or collaborative Web apps (i.e. Padlet, Wikis) in the institutional platform to enhance the involvement of the students. The use of different collaborative media (i.e. YouTube, Google+, Academia.edu) can also help develop contents and research. Open content educational resources such as videos, TedTalks, etc. have been acknowledged to provide scholars an “open provision of educational resources for consultation, use and adaptation by a community of users” [17].

In ADDIE final phase, teachers need to **evaluate** if the process and objectives have been achieved through formative and summative evaluation [4]. Formal qualification can be carried out combining these two approaches in different ways supporting students’ learning and progress. There are different strategies for online teaching that propose a wide range of assessment tools. These vary from time-restricted tests, to tutors and students assessing themselves through writing, papers, quizzes, conversations, etc. with engaging educational technology [5], [15].

The above-mentioned procedures and methods, which are currently being implemented in three different areas of ErasmusX project (BA in Education, BA in Economics and BSc in Technology), support ADDIE as an

practical instructional design model for online teaching.

The methods revised for the design of e-learning environments have underscored the role of teachers as instructors and constructors of knowledge [8]. The establishment of constructivist and communicative approaches appear necessary to create common online teaching guidelines in ELED. In this sense, promoting telecollaboration [11] for best practices in online teaching [18] requires academic members to “think differently about teaching and learning, learn new technological skills, and engage in ongoing faculty development for the design and development of quality online instruction” [5:279].

### III. CONCLUSIONS

This communication studied the differences between face-to-face and e-learning methods in order to identify and adapt key procedures for the design of online credit mobility courses. Bearing in mind this purpose, the paper examined innovative practices and the main aspects to consider for online teaching. Outcomes underline that e-learning engagement design requires not only a revision of the role of teachers, but also a different lesson structure following a validated model and the promotion of telecollaboration with educational technology.

This paper categorized key educational approaches and projected a notional methodological framework based on the ADDIE instructional design model as a flexible guideline for effective online training. The revised methods expect to facilitate collaboration among institutions and instructors for the development of endorsed e-learning in higher education with constructive instructional practices.

The approaches examined were based on corporate practices in similar e-learning EMI contexts. The outcomes derived from the development of on-line courses for Erasmus students on several pre-defined areas are expected not only to facilitate internships abroad, but also to enhance intercultural quality education with the use of well-grounded educational technology.

We expect that the issues addressed in this project will facilitate not only the organization of international placements and studies abroad, but also the administrative work of the partakers who need to determine credit transfers among institutions following specific protocols.

The procedures reviewed have provided a representative depiction from specific perspectives which are also believed to have their shortcomings. In combination, however, it is believed that the framework presented can help provide a common theoretical basis for the design of online courses in credit mobility programs both within and outside Europe. Future investigation will analyze which specific methods and resources are preferred by scholars and students for appropriate implementation or readjustment in the ErasmusX program.

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