
ADAPTING EXISTING COMPETENCE FRAMEWORKS TO HIGHER EDUCATION ENVIRONMENTS

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Abstract

Analysis of users' learning needs, design and selection of learning reference materials, set up of synchronous and/or asynchronous support provisions (i.e. tutoring and mentoring services), design and implementation of specific monitoring and evaluation tools - these are just a few key, relevant functions for any learning as well as eLearning system and which require that involved actors (teachers, tutors/mentors, developers, and managers) develop, continuously nurture and update their specific competences.

The significant investments of European Higher Education Institutions (HEIs) in eLearning systems demonstrate a clear interest in discovering and implementing effective methodological/learning strategies and suitable applications, in order to deliver education services to meet both students' learning needs and institutional educational aims. The resulting eLearning models implemented in HEIs show how a complex concept can be inflected in many different ways, ranging from pure and stand-alone online learning services, to online services and tools supporting traditional classroom-based teaching, passing through blended learning solutions, which combine multiple synchronous and asynchronous approaches (i.e. the virtual classroom, networked collaborative learning, individual learning activities, etc.).

In this context it is worthwhile to reflect on how we can effectively represent the various appropriate competences. Most commonly, competency frameworks are discussed in the training sector, rather than higher education, and some degree of adaptation, therefore, is necessary if they are to fit well with sectoral specificities and context (operational, cultural and institutional). However, it is important to proceed with the identification and analysis of the required competences by utilising existing models and maps. Only then will it be possible to define the specific requisite roles resulting from the *ad hoc* combination of different competence frameworks, for teaching, support and management staff, both for initial training for new staff and Continuous Professional Development (CPD) for those with more established positions.

This article addresses these themes, linking the traditional pedagogical, methodological and human resource approaches adopted by HEIs, with the articulated competences and skills frameworks which are being developed and implemented within eLearning systems. The article also critically addresses the issue of how eCompetences relate to the classic competencies needed to design, implement, support, and evaluate learning and training processes¹.

¹ Even though these are not always apparent in practice, in many HEIs.

1. A process-based view to identify key eLearning-related features of teachers within Higher Education contexts

The still high level investment of European Higher Education Institutions (HEIs) in eLearning systems (Van der Wende and Van de Ven, 2003) demonstrate a clear interest in identifying and implementing effective methodological/learning strategies and suitable applications in order to:

- deliver education services - to meet students' learning needs;
- make available to teachers, consistent and quality didactical tools and content - to meet their teaching priorities and needs; and
- set up sound and sustainable learning environments - to meet institutional educational aims, with a positive impact on society.

In this respect, the complex set of teaching-related activities carried out by universities is also based on administrative structures and services which allow for strategy implementation, daily operational and financial management. Given this varied and large set of activity areas, universities can be considered as *complex organisations* delivering a wide range of services, despite the fact that related relevant literature is not particularly rich either in quantity or in qualitative descriptions. There is sufficient convergence among researchers and practitioners in the identification of a few main dimensions² which are embedded in the 'university-as-complex-organisation' concept:

- The *overall strategy*, comprised of:
 - The *Vision and the Values*: HEIs envision a better, more informed society by supporting the transmission of a common culture and of common values based on the enhancement of equal access opportunities to learning, intellectual and ethical understanding.
 - The *Mission*: HEIs generally strive to contribute to the development and growth of learners as individuals and citizens, providing them with the tools (methodologies, contents, services) to help them progress in intellectual and ethical domains (hence helping them cope with needs related to employability and self-fulfilment in society) thus providing a multiform public service to society.
 - The *Strategic Goals*: HEIs, in pursuing the development of their overall strategy, generally strive to meet the changing educational needs of individuals, employers and society, constantly working to reach excellence in education, research and to enhance their reputation and effectiveness.
 - The *HEI Core Operations*: these comprise all those activities undertaken in order to achieve the strategic goals; the core operations relate to teaching and comprise the whole set of services and activities which make teaching possible thus substantiating the role of HEIs. In this respect, any university 'core business' is made of teaching/knowledge transfer, research and of the overall direction of the support services which underpin teaching and research.

Regardless of the nature of HEIs (be they traditional universities where teaching occurs in "*presential*" sessions and *ex cathedra* classes, or be they universities where eLearning-based methods have already been introduced, or even "open" universities), their 'core business' is education and research and the core processes relate to pedagogical design, delivery and evaluation. It is important, at this stage, to underline the fact that pedagogical processes are structured in a way that is similar across different teaching and education models. Process analysis is not an exact method, but it is, rather, a working approach to the required competences by means of a deductive strategy. It begins by establishing the

² Adapted from C. Dondi, *The introduction of VLE's in conventional university contexts: an institutional perspective*, in: Barajas, M. (Ed., 2003): *Virtual Learning Environments in Higher Education: A European View*. Barcelona, Publicacions de la Universitat de Barcelona

main purpose of the business process under study, and then questions are asked to find out what tasks need to be performed in order for the process to achieve the related goals. Therefore, it is important to reflect on and discuss the following:

- The adoption of a process-based view of HEI implies a focus on people's contribution to the organisational value and performance.
- The value that people bring about within the organisation is to be considered under many perspectives in addition to the well-accepted curriculum-based view. This implies a shift from curriculum-based to competence-based Human Resources evaluation, and, accordingly, also to career plans, training programmes, personal development and growth schemes, etc.
- The possibility to extend organisational competence-based views and approaches (adopted in Human Resources Development and Management schemes) to Higher Education, so as to enrich (and/or to replace) traditional curriculum-based programmes.

According to this perspective, in any education system there are a few key processes which need to be performed:

1. Learning needs analysis of the addressed target group(s).
2. Training design, based on target groups' needs and shaping the course structure; the design and selection of reference materials, media and communication tools; of the characteristics of the support provisions (i.e. tutoring services) and of the objectives of assessment and evaluation.
3. Delivery of the learning programme.
4. Monitoring and evaluation.

These are the macro areas which are relevant within any learning as well as eLearning system and which require that involved players (teachers, tutors/mentors, developers, managers) develop, continuously nurture and update specific areas of competences in a manner consistent with the advancement of methodological and technological conditions. The *identification of competences* is the method or process followed to describe/represent the competences that are involved in performing an activity satisfactorily.

But then, what changes in an eLearning system in comparison to a traditional education system? Bluntly put, technology makes the difference. It influences the way each of the above phases are designed and carried out, and it affects the roles of the involved players and consequently the set of competences they need to have. According to state-of-the-art theory and practice developed for the training sector, it is possible to identify five roles within eLearning experiences which cover transversally the four key processes: trainer/teacher; tutor; developer; manager, and consultant³. The *Training Foundation* has differentiated and detailed the sets of tasks and related competences (comprised of skills and knowledge elements) the above-mentioned five eLearning professional profiles need to have. Whereas developers, managers and consultants are expected to have a more technology-biased profile (having to deal with topics such as instructional design; user interface and media development; integration of components by authoring tools; etc.), teachers/trainers and tutors present more hybrid profiles, which combine traditional pedagogical tasks with technological ones, thus requiring different and complementary sets of competences.

³ The Training Foundation: <http://www.trainingfoundation.com>, and the European Institute for ELearning -EifEL: <http://www.eife-l.org>. The 'Certified eLearning Professional Programme' outlines the set of competences required from the identified profiles in order to work effectively in an eLearning system.

As regards teachers who utilise eLearning (who represent the focus of this paper), the following table presents a tentative, preliminary overview of teachers' tasks in relation to the four key teaching processes as identified above.

KEY TEACHING PROCESSES	EXAMPLES OF TRADITIONAL PEDAGOGICAL TASKS	EXAMPLES OF TECHNOLOGY-RELATED / ELEARNING-SPECIFIC TASKS
<i>CONTEXT ANALYSIS AND NEEDS ANALYSIS OF THE ADDRESSED TARGET GROUP(S) – ENROLLED STUDENTS</i>	<ul style="list-style-type: none"> • Design of <i>ad hoc</i> instruments for learning needs analysis (individual, labour-market related, and socio-economic needs). • Provision of initial information and advice about the study programme. • Provision of continuing advice and support to learners during the study programme. 	<ul style="list-style-type: none"> • Analysis and selection of a virtual medium for lessons consistent with the addressed target group's learning needs.
<i>TRAINING DESIGN</i>	<ul style="list-style-type: none"> • Incorporation of the results of learning needs analysis within the study programme (adaptation). • Suggestion of and support to study programmes. • Selection and/or development of adequate reference materials. • Design of adequate support system (tutors, mentors, moderators, etc.). • Identification of the main issues to be addressed by assessment and evaluation. 	<ul style="list-style-type: none"> • Development of digital contents. • Design of online lessons (selection of the most adequate media, communication strategy, language, teaching/learning tools). • Design of the online support system (identification of roles, responsibilities, work schedule, etc.).
<i>DELIVERY OF THE LEARNING PROGRAMME.</i>	<ul style="list-style-type: none"> • Adoption of appropriate learning strategies. • Use of suitable communication strategies. • Activities to make the most of the audience addressed. • Encouragement for participation and collaboration. • Use of appropriate question techniques. • Management of learners and of possible difficult situations. • Management of multi-cultural audiences. • Establishment of relationships with learners. • Provision of content expertise. • Management of activities that facilitate learning. • Co-ordination of study courses. 	<ul style="list-style-type: none"> • Delivery of online lessons (using solutions such as real-time sessions, virtual classroom, etc.). • Provision of technical expertise. • Use of web pages for communication with learners. • Use of emails for communication with learners and tutors. • Use of bulletin boards, discussion forums, text, videoconferencing and audio, for communication with learners. • Tracking and analysis of learners' participation (by means of CAA – Computer-Assisted Assessment)
<i>MONITORING AND EVALUATION</i>	<ul style="list-style-type: none"> • Monitoring and review of students' progress. • Evaluation of learners' performance. 	<ul style="list-style-type: none"> • Development of evaluation tests using test generation programmes. • Processing and analysis of evaluation data retrieved from the online system.

Table 1: Overview of teachers' tasks in relation to the four key teaching processes⁴

This approach is supported by findings and achievements resulting from other interesting experiences begun in the 1990's⁵ (further developed in the following years within other initiatives⁶) and involving

⁴ The description of tasks and then of competences has been elaborated on the basis of Delphi's materials for certification (Delphi – Development of Educational Links and Professional and Higher Education Initiatives. TACIS, 1998-2001) and of the Training Foundation's Competency Framework as described in the informative booklet 'Guide to the Certified eLearning Professional Programme', 2000-2003, p. 11 *et ss.*

European consortia. The research on existing education models and the piloting experiences in open and distance learning carried out during the last decade and formalised in recent times have highlighted some key features characterising the profile of teachers and trainers working in an eLearning environment.

So, the main question at this stage is: *How do teachers' and trainers' role and competence profile change in an eLearning setting?*

2. The eLearning teacher

The eLearning teacher is not a new character in HEI contexts. It is instead an 'extended' character, combining the 'old', traditional teaching roles with novel, eLearning-specific tasks which require a set of specialised knowledge and skills related to the use of technology for learning. This implies that the eLearning teacher needs to master both traditional pedagogical tasks and eLearning tasks with the aim of providing learners with well-structured and effective teaching, communication and organisational services, reducing the room for improvisation and risky 'common sense'. Working with students who have been defined (Prensky, 2001) as 'Digital Natives' (who represent the first generation to grow up in the age of digital technology and to get used to computers, video games, mobile phones and digital music players), teachers working with eLearning solutions need to adopt quickly and effectively the new language and overcome the status of 'Digital Immigrants' avoiding difficulties and hindrances in the integration process, leading to a mature use of eLearning as a powerful tool to enhance pedagogical approaches and didactical strategies.

So, whilst European HE teachers may learn basic pedagogical skills during their initial teacher training, and then develop them further in formal teaching environments, it appears that there are not many structured and formal training programmes for supporting HE teachers in the development of eLearning competences. These competences are needed in order to ensure new and innovative didactics which, based on traditional approaches and learning strategies, develop in a way that integrates and effectively uses the new media. As such, eLearning competences for teaching are not only comprised of mere technological skills (i.e. knowing how to prepare a teaching session using a presentation manager application or how to generate an online test), or of definite pedagogical skills (i.e. how to design a study programme in its complexity), but also of "a set of intangible and sensitive elements which refer to issues such as the teacher's conception of eLearning, the eLearning environment, the planning stage, the development of eLearning teaching strategies, pedagogical principles specific to eLearning and student experiences and expectations of eLearning." (Wardca, 2003)

Based on these ideas, and on the basis of Table 1, it is possible to elaborate a preliminary competence framework, linking for each of the main teaching processes the related competence clusters, for which a tentative description of the involved core competences is provided. The following (Table 2) contains a preliminary framework for the representation of this approach developed for eLearning teachers:

⁵ EU-funded projects such as PALIO (COMETT, 1994-97), MULTIPALIO – Developing and Upgrading a European Qualification System for Teachers and Trainers in the field of Open and Distance Learning (Leonardo da Vinci, 1997-2000), CALIBER-NET (Socrates, 1996-98), DELPHI – Development of Educational Links and Professional and Higher Education Initiatives (TACIS, 1998-2001)

⁶ For example, by the EU-funded projects MASSIVE - Modelling Advice and Support Services to Integrate Virtual Component in Higher Education (eLearning, 2004-06), BENVIC – Benchmarking of Virtual Campuses (Socrates, 2001-03)

KEY TEACHING PROCESSES	COMPETENCE CLUSTERS	EXAMPLES OF TRADITIONAL PEDAGOGICAL COMPETENCES	EXAMPLES OF TECHNOLOGY-RELATED / eLEARNING-SPECIFIC COMPETENCES
<i>LEARNING NEEDS ANALYSIS OF THE ADDRESSED TARGET GROUP(S) – ENROLLED STUDENTS</i>	ANALYSIS COMPETENCES	<ul style="list-style-type: none"> • Expertise in learning needs analysis techniques. • Expertise in the fundamentals of adult learning. • Ability to identify students’ characteristics and specific learning needs and expectations.- 	<ul style="list-style-type: none"> • Ability to match students’ learning needs with eLearning models. • Ability to take into account students’ learning needs to select appropriate learning resources and media. • Ability to use the Internet as a learning resource. • Ability to provide all the necessary administrative support for the different aspects of eLearning.
<i>TRAINING DESIGN</i>	DESIGN COMPETENCES	<ul style="list-style-type: none"> • Ability to define the learning objectives of a study programme. • Ability to design study programmes in line with the identified pedagogical objectives. • Ability to select and use the adequate reference materials. 	<ul style="list-style-type: none"> • Ability to select the suitable medium for the learning programme. • Ability to design the adequate eLearning reference materials. • Ability to prepare real-time session. • Ability to schedule a virtual session. • Ability to design consistent online monitoring and evaluation tools.
<i>DELIVERY OF THE LEARNING PROGRAMME</i>	DELIVERY / MANAGEMENT COMPETENCES	<ul style="list-style-type: none"> • Ability to deliver and manage a presential class. Ability to provide learners with subject matter expertise. • Ability to create relationships with learners. • Ability to communicate in an appropriately and effectively with learners. • Ability to address and manage multi-cultural audiences. • Ability to use appropriate question techniques. 	<ul style="list-style-type: none"> • Ability to adopt a learner-centric / learner-based approach • Ability to deliver and manage a real-time online session. • Ability to deliver and manage a virtual session. • Ability to manage virtual classroom tools effectively. • Ability to provide learners with technological expertise.
<i>MONITORING AND EVALUATION</i>	EVALUATION COMPETENCES	<ul style="list-style-type: none"> • Ability to select the adequate assessment and evaluation approaches and tools. • Ability to use the adequate assessment and evaluation approaches and tools. • Ability to process learners’ feedback. 	<ul style="list-style-type: none"> • Ability to use consistent and coherent online monitoring and evaluation tests. • Ability to retrieve relevant evaluation data from the available online evaluation devices.

Table 2: Preliminary representation of a competence framework for eLearning teachers

It is important to stress that each of the competences presented above (both traditional pedagogical ones and eLearning-specific ones) can be further detailed and split into micro-competences, thus forming the whole and complete competence profile of an eLearning teacher/trainer. However,

attention to context-related features and specificities suggest it is best to leave this representation at a still general, ‘half-way’ level.

In general terms, the implementation of eLearning in university settings has to be carefully planned and organised, not only from a technological/logistical point of view (e.g. buying the equipment or organise the access to laboratories) but especially from a human resources’ point of view (not only teachers and tutors but also other roles). That is why the introduction of ICT should be integrated or embedded into a strategic direction of evolution and/or innovation already existing in each university environment. The effort to provide training and information to teachers is a pre-condition for the development of pedagogic uses for ICT. It would allow them to be involved in the evolution of products and services and it would contribute towards the creation of a core group of teachers and trainers ready to advise and support colleagues, on the ground, in the use of new technologies. Teachers must be given the opportunity to develop new learning experiences and new valid models, from which they may build the “new” role of teachers and of the other professionals also working in external support centres⁷.

They also need to be given (a) the time necessary not only to learn how to use new technologies, but to understand their potential and the advantages for their professional development and the development of their learners and (b) sufficient access to resources and the possibility to communicate easily with colleagues. There is not a pre-defined model to be followed, but every teacher has the possibility to benefit from the opportunities and potential offered by technologies in a personal way, selecting what is more in tune with her/his own way of learning and approach to teaching.

So, what model can be adopted and/or developed in HEIs in order to meet the needs of students, teachers and support staff?

3. What model for HEIs?

The competence framework presented in Table 2 shows how complex and multifaceted the profile of eLearning teachers is, covering issues such as pedagogical mastery, communication talent, awareness about the use of technology, online interaction and negotiating processes. Training and practice are required in order to up-skill teachers’ professional profiles and to develop and set forth effective results in pedagogical as well as in organisational terms. Currently, teaching courses include subjects related to eLearning and the use of it as a delivery method. Many Professional Development (PD) activities within the educational sector focus on the use of software, such as creating PowerPoint presentations or updating a web-based learning environment. While this may be seen as a positive step, these activities fall short of addressing important questions influencing the success of eLearning programmes. CEDEFOP⁸ surveyed a range of dimensions related to teacher training in eLearning, such as:

- how teachers acquired new skills in eLearning,
- the type of eLearning-based PD activities they were undertaking,
- the type of informal learning opportunities experienced or accessible during the career path,
- whether the activities were conducted during work or within their own time.

⁷ Such as the CEVUG – Centro de Enseñanzas Virtuales de la Universidad de Granada (Virtual Education Centre of the University of Granada), Spain.

⁸ CEDEFOP (2001): ELearning and Training in Europe. A survey into the use of eLearning in training and professional development in the European Union. CEDEFOP Reference Series; 26. Luxembourg: Office for Official Publications of the European Communities.

Results of the survey indicated that PD activities were more “informal” than “formal,” meaning that teachers acquired the majority of their eLearning skills through discussions with colleagues rather than through organised PD activities. In this respect, it is to be stressed that too little attention is being paid to how informal learning outcomes are integrated within formal paths. In addition to that, only 1 to 4% of their organised PD activities were related to eLearning and nearly one quarter of respondents reported that they spent 5 to 10% of their PD time outside work hours. Most respondents rated the quality of their PD activities as poor to fair and most were required to fund the majority of the costs themselves.

Therefore, if Higher Education Institutions are to meet the forecast challenges brought about by the use of technologies for learning, then initiatives in eLearning will need to address a variety of domains, ranging from targeted professional development opportunities, organisational management of change and innovation, with an eye on the effects that such innovations may exert on HEI human resources. In this respect, information and communication technologies are changing the way many processes are conducted and raising the service expectations of HEIs’ customers, namely students, faculty staff (teaching staff, administrative and management staff) and the community as a whole. Introducing teachers to the use of technology is not enough. HEIs as complex organisations should elaborate the necessary PD activities aimed at introducing teachers to the different possible eLearning models which can be implemented. In this respect, not only is it crucial that teachers are ‘introduced’ to different eLearning models, but also that the HEI makes clear what eLearning models are to be introduced (e.g. virtual classroom, or collaborative eLearning supporting traditional classroom-based teaching, on-the-job continuous vocational training using web-based learning, etc.) and what related professional competences need to be developed and what organisational solutions need to be implemented.

Teachers need specific models and examples of how they can incorporate technology into their educational environment in order to implement such innovations effectively and actively. As professionals, teachers will then decide which of those models they will adopt in order to better meet their final users’ needs, which ones they will adapt and which ones they will discard. The resulting eLearning models implemented in HEIs show how a complex concept can be inflected in many different ways, ranging from pure and stand-alone online learning services, to online services and tools supporting traditional classroom-based teaching, passing through blended learning solutions which combine together multiple synchronous and asynchronous solutions (i.e. the virtual classroom, networked collaborative learning, individual learning activities, etc.).

eLearning has introduced (or made more evident and compelling) important dimensions of innovation which imply a deep reflection on the founding elements of Higher Education, namely values, visions, policies and models of education. This is the great challenge that universities are facing now and that they need to handle in order to avoid eLearning being regarded as an unfamiliar and unwelcome alternative to traditional teaching. There is a need to face these questions squarely, without indulging in ‘non-issues’ which have, in the past, caused mistakes of ‘omission’ and ‘commission’, leading to the failure of many initiatives and to what has been developed. These include ignoring lessons of previous initiatives and not taking into account basic pedagogical dimensions related to the university-typical processes and, above all, without properly accounting for users’ needs.

Quoting some of the main recommendations developed by the European ODL Liaison Committee in November 2004⁹, HEIs are coping with, and will increasingly have to manage, a set of issues such as:

1. The integration of ICT in the Bologna process, also to enable European Higher Education to offer European education globally.

⁹ Distance Learning and eLearning in European Policy and Practice: The Vision and the Reality. Policy Paper of the European ODL Liaison Committee approved by the Member Networks. Released 17 November 2004

2. The official recognition awarded by national authorities responsible for higher education to those efforts made by institutions which can demonstrate that they are successfully responding to the challenges of eLearning.
3. The extension of quality assurance, accreditation and qualification frameworks to eLearning and other non classical modes of delivery in an integrated approach encompassing the full range of higher education.
4. The acknowledgement of the contribution of so-called “virtual mobility” to international academic exchange and joint curriculum development in the design of international mobility schemes.
5. The promotion of ‘mutual support teams’ of universities, to enable them to share their experiences at strategic levels, and hence mitigate the current competition between institutions.
6. The review of performance assessment and reward schemes towards higher valuation of quality and of innovation in teaching.
7. The recognition of the role of eLearning in inspiring and influencing strategic choices for internal development.
8. The set up of adequate provision of advice centres or services, which can draw upon the information obtained from greater research and evaluation activity in the field of eLearning.
9. The provision of adequate instruments and solutions for leaders of education and training institutions, who need to be better equipped and supported to implement changes needed for the successful introduction and mainstreaming of meaningful eLearning.

The consultation and involvement of the professional environment and its representative networks not only in the definition of new phases of European Programmes but also in the implementation of strategic actions at a system level.

This flow of thoughts leads to the consideration that a more complex and integrated blueprint for HEI organisation needs to be implemented, concerning organisational and management strategies and pedagogical models, so as to meet the needs of the different players involved (students, teaching staff, administrative and management staff). The aim being to promote growth and sustain development to adapt to the anticipated and the unforeseeable events that will take place between now and e-Bologna process achievements¹⁰.

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¹⁰ Sorbonne Declaration of the EADTU members, Paris, September 2000 and further developments. For detailed information: <http://www.eadtu.org>

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