Transnational study of roles/functions and associated ICT competencies for Higher Education teachers

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Context

This study forms part of the eLene-TLC[1] Virtual Campus project (2007-2008) supported by the European Commission's eLearning programme. The aim of this project is to enable teachers and students to make the best possible use of ICT in higher education, preparing teachers for the net generation of students, enabling students to transfer skills and practices from their daily life to their learning and encouraging both to fully integrate the innovative teaching and learning practices made possible by the constantly evolving technological environment.
In order to meet part of this general objective, a study to examine Higher Education teachers' ICT competencies in online learning environments was devised.

The concept of "competency" is utilised in differing ways. One approach viewing competency as skill (individually placed) refers to abilities to perform roles and carry out tasks according to standard expectations (McClelland, 1973; Pearson, 1984; Spencer & Spencer, 1993; cited in Eraut, 1998). The limitation of this approach lies in the fact that in their everyday practice, a professional faces contextual and interactive situations with other professional or "clients", which call for adequate responses to their specificities, and which are probably removed from the standards or the expertise of the "know how", underlying in this point of view. A second view introduces arguments in favour of socially situated competency. In contrast with the previous notion, this approach takes into account the social nature of competency; it is the actors themselves, their expectations, who determine and shape the content of the competencies required to perform successfully in individual professional contexts (Messick, 1984; Gonzi et al., 1993; cited in Eraut, 1998, Westera, 2001).

With regards to training, the first point of view regards competency as a cognitive structure which facilitates specific behaviours, and training as their development. By considering that competency involves a wide range of abilities and entails behaviours with different responses in complex and specific situations, the second assertion subscribes to active and meaningful learning. This latter point of view seems to us most suitable to understand the nature of teaching in online learning environments, as well as for the design of teacher training actions. On the other hand, if the goal of teacher training is to develop competencies, we believe that training must make reference to a minimum set of specific competencies which are related to the variety of functions, tasks and roles to be performed in practice. This conclusion on how to understand training on competencies leads us to look deeper into the definition of functions and roles to which teacher competencies relate, which will ensure not only a better understanding of teaching in asynchronous learning environments, but more specially, the design of formative actions.

Aim of the study

This study intends to design an integrated framework of the educational ICT competencies that Higher Education teachers should have. This is aimed at the definition and concretisation of the training and professional development needs of teachers, in terms of competencies to develop and learning-teaching methodologies that most suit the training.

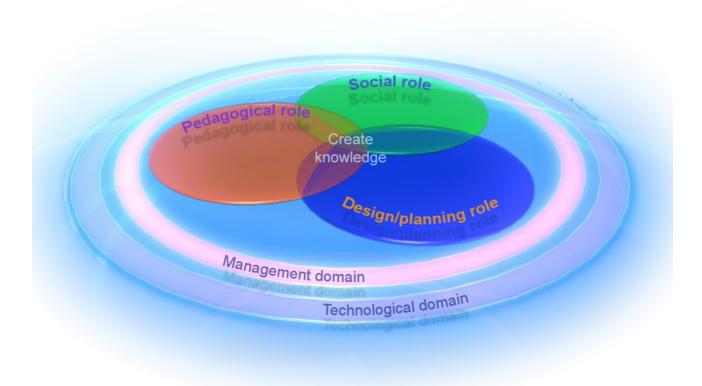[1] European Commission eLearning programme, Virtual campuses (2007-2008). www.elene-tlc.net

Overall competency framework

The competency framework presented below resulted from initial work carried out in the eLene-TT[2] Virtual campus project (2005-2007) supported by the European Commission's eLearning programme. Teaching with ICT in higher education was defined as involving three main roles: pedagogical, social and design or planning. The technology is considered part of the environment and is thus considered a 'domain' rather than a specific role. The same is true of the management domain, which concerns the organisational environment in which teaching and learning take place.

This framework[3], and the competencies for higher education teachers associated with it, were validated on a European level by a dual process of focus groups of teachers and teacher trainers in each of the participating countries and an online Delphi method involving 78 experts, from 34 universities of 10 European countries who participated in two rounds (invited N=107). For more information on the methodology used, you are invited to consult the following documents, referenced in the **eLene Teaching and Learning Centre** www.tlcentre.net.

1) Transnational study of teachers' ICT competencies in HE
   http://www.tlcentre.net/show_id_card.cgi?ID=402
2) Methodology for reaching consensus on educational ICT competencies in HE
   http://www.tlcentre.net/show_id_card.cgi?ID=411

Click on each of the zones in the diagram below to consult the competencies associated with each role or domain

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[2] www.elene-tt.net
[3] This framework also applies to competencies for students, educational technologists and instructional designers.

Roles, domains and associated competencies for HE teachers

DESIGN / PLANNING ROLE:

Definition:

Teachers design the planning, monitoring and organisation of the learning process. They provide supporting tools to enable interaction among students and with students concerning learning goals and assignments. Teachers plan the activities/supports that assist students in the acquisition of self-organisation and self-regulation skills. The activities and supports must explicitly scaffold the acquisition of these skills in specific contexts related to specific domains).

As learning technologies increasingly incorporate highly interactive/collaborative elements, the teacher must have a basic understanding of self-organising processes. This implies planning differently to what is implied in a traditional learning process. In this sense, it is important to know how to plan, how to use the planning and how to adapt the planning depending on the dynamics of ongoing learning activities.

Teachers need to be aware that instant changes may occur and that they need to be prepared for that (with previous planning).

Competences assigned to the planning/design role:

- Know how to use ICT tools to create and facilitate a community of learning.
- Make decisions about methodologies appropriate to:
  - previous knowledge and experience of students (appropriate to social, cultural and gender conditions);
  - the learning objectives: team work, discussion, case analysis, etc.
- Create activities related to specific aims. These activities have a close relationship with the knowledge to be acquired.
- Design the feedback and evaluation moments adjusted to the learning and teaching process.
- Plan student support during the teaching and learning process.
- Be aware of the fact that students have different levels of ICT experience. To anticipate the problems students will face when working on an assignment or course.
- Create materials and tools that adapt the use of ICT to students.
- Make decisions about how to present the content.
- Make decisions about how students are to interact and which tools are appropriate for a given type of interaction (e.g. wikis for collaborative construction, blogging for conversation-type activities, etc.).

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Definition:

The teacher masters the field of expertise (strategic teacher and expert in his/her professional field), gives support during teaching and learning processes, and promotes deep learning that is both complex and critical. This role refers to the abilities necessary to create learning situations by proposing activities to which content will have to be associated.

Active, contingent, varied teacher assistance throughout the process is needed in order to fit teaching to students' needs, expectations, interests and prior knowledge.

Teachers must be able to oversee the consequences of their actions (instruction, expectation, use of ICT, setting goals, discussion, interaction etc). This involves the instruction and structuring of activities for the whole class, monitoring activities, intervening with individuals and small groups and drawing the class together in group discussions where appropriate.

Competences assigned to the pedagogical role:

- Check teacher's planning in interaction with students.

- Follow students´ learning processes/achievements: to maintain continuous and tailored feedback -considering the educational context, learning goals and student characteristics- to promote knowledge building.

- Make improvements to teaching delivery according to feedback received from students about methods, communication.

- Use pedagogical modalities based on ICT (blended, virtual, etc) that support the goal/purpose of the course and the type of learning.

- Communicate in an effective way (i.e. clearly and precisely) by using ICT.

- Be aware of different kinds of pedagogical models and use them in an appropriate way in different teaching/learning situations (taking into account students' learning styles, the differences in level of experience in the use of ICT, previous knowledge and motivation backgrounds.

- Use ICT tools to effectively assess students´ knowledge/capacities (to promote self-assessment, formative and summative assessment).

- Assist students when necessary specifically when asked but also to anticipate to possible doubts and queries.

- Support students´ acquisition of learning strategies (to seek, organise, analyse, apply, etc) and self-regulation skills.

- Know how to deal with self-organising processes that emerge unplanned.

- Know how to facilitate collaboration between students through synchronous and asynchronous technologies.

- Work like a 'reflective practitioner' and with a 'collaborative' approach to the development of their pedagogies.

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SOCIAL ROLE

Definition:

The teacher stimulates the process to promote a communicative atmosphere (cohesion, team motivation, commitment) that favours interaction and cooperative knowledge building.

The teacher must foster the creation of a community of learners in order to diminish the feeling of isolation and help creating a group identity.

Competences assigned to the social role:

- Maintain continuous, positive and constructive feedback to encourage student participation and high levels of motivation.
- Support clear communication (mutual understanding) with students in virtual environments.
- Set a trustful atmosphere for communication.
- Promote collaboration among students and assist them in the acquisition of collaboration skills.
- Promote communication between students.
- Build a feeling of belonging to an online learning community.
- Provide strategies to avoid misunderstandings, interruptions, incomprehension.
- Implement moderating strategies during the learning activity.
- Be able to give to students equal opportunities to participate in collaboration.
- Be able to use humour and good manners during the teaching and learning process.

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MANAGEMENT DOMAIN:

Definition:

The teacher must be competent in the organisation of information, either in a blended or in a fully virtual learning environment, before, during and after the teaching and learning process.

Competences:

- Be able to manage the ICT teaching and learning process in a coordinated way: with colleagues, designers, technicians, with other teachers, etc.

- Be able to manage different types of information from different sources, in different formats, for different purposes, from different quality, with different status, etc

- Be able to select, structure/ organise and formalise in order to support or stimulate the learning process.

- Be aware that instant changes are probable and that they can be prepared for that (with advance planning).

- Be aware of the different organizational issues emerging in an online environment, as correct enrolment procedures, information feedback given to students, etc.

- Be able to handle new and unexpected situations in a reasonable way. This means that the teacher must be able to decide what to do, e.g. when an important resource (teacher, computer, program) fails.

TECHNOLOGICAL DOMAIN:

Definition:

The teacher must be competent to use ICT within an educational framework.

Competences:

- Be updated in new ICT with pedagogical purposes.

- Understand the possibilities (functions) of ICT: what is possible (its potential and constrictions), which tool is most appropriate for a specific aim, situation and student.

- Know how to work with tools that can support collaborative inquiry and knowledge co-construction in learning communities.

- Be able to contribute to further developing of the use of ICT within their institution.

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CROSS-CUTTING ASPECTS

In addition to the identified roles, experts pointed that teachers should work in a team with other professionals that give them support on the planning/design, technological and organisational tasks. This means that teachers are fully in control of the learning process, but that they receive support from some teams depending on the teacher's demand.

METHODOLOGIES TO DESIGN TRAINING ACTIONS

Concerning the methodologies for teaching ICT competencies, there was a total agreement with the items proposed in the 1st questionnaire. However, other methodologies were suggested. In the end, the experts reached consensus on the following methodologies:

- **Learning by doing:** These are learning experiences that reflect the "real use" of ICT resources (placed, contextualized learning close to teachers' reality and to the educational institutions) to experiment, to explore, to practise.

  - On the job/ just in time learning (ICT possibilities should be embedded in the context).
  - Create buddy projects, teachers who work together on designing and experimenting with ICT in their education.
  - Problem-based learning.
  - Case study.

- **Collaborative learning:** These are learning in experience that colleagues / experts/ students/other people/are involved:

  - Observing (and assisting) an experienced teacher at work.
  - Coaching by experienced colleagues.
  - Mentoring.
  - Creating collaboration with students (taking into account will and time available, not overloading it, valuating the possibility to conceive their collaboration as an extra to the curriculum, i.e. extra credits, etc…).
  - In team work: not single, individual teachers, but a teacher team, supporting each other and giving peer feedback and consultations to each other.
  - Planning regular meetings to help them with their projects, to accompany them in their experiences.

- **Learning with online support:** These are teaching practices which requires ICT support:

  - On-line presentations in order to release resources and tools, to give demonstrations or offer general guidelines.
  - On-line discussion in order to share experiences or as part of group work.
  - Collaborative on-line tools to support face to face workshops: email, blogs, educational platform.
  - Computer-supported collaborative learning format that enables teachers to act in a community of practice, learning from each other, and scaffolded by the learning design tool itself - the LAMS community would be an example.
  - On-line training with face to face support.
  - Benchmarking of similar experiences.

CONDITIONS FOR SUCCESSFUL TEACHER TRAINING IN HIGHER EDUCATION

These are some conditions or criteria that favour the development of university teachers' competences for using ICT in teaching:

- Institutional policy to ensure that every university teacher has a negotiated personal professional development plan that includes teaching competence.

- Institutional policy to ensure that adequate time is available for training within that agreed plan.

- Training in the potential uses of ICTs in teaching universities should be in service.

- Vary the group size from one to one teaching to small groups (10-20) or bigger groups (+20) depending on the purpose and methodology of the teacher training action.

- Training should awaken interest and motivate teachers to use ICT in teaching (demonstrate the benefits, feasibility etc... attract them to the world of ICT...)

- Build training around teachers' project teams or teacher experiences.

- If it is possible or convenient, integrate students in the teachers' support process.

- Favour the experience of e-students during the teacher training actions (to become a good e-teacher it is convenient to have been an e-student for an entire course).

- Plan the learning as a continuous process (monitoring, mentoring, guiding, supervision, etc.).