Competence Based Tutoring Online

A Proposal for Linking Global and Specific E-Learning Models

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Abstract. The paper suggests crossing global e-learning models with specific ones so as to determine their possible correlation in order to infer online tutor competence profiles. These are found at the intersection of the pyramid, matrix and e-learning instructional design models. Hypothetical setups of the pyramid e-learning systems are discussed. The competence matrix is described in more detail as a complex and potentially useful instrument to guide OLT training and evaluation. It is concluded that the synergy resulting from the interplay among the competence matrix, e-learning instructional design models and e-learning environments will make it possible to assess instrument potential and conceptual schema appropriateness. It will also show their limitations, with a view to improving them.

1 E-learning models and tutoring competences

Cooperative or collaborative online learning [6, 7, 10] appears as the most complex and qualitatively rich of the three models –independent, assisted and collaborative- proposed by Banzato & Midoro [9]. Collaborative activities entail task-sharing and the explicit intention 'to add value', i.e. to produce something new or different through a deliberate and structured collaborative process, as opposed to just exchanging information or executing instructions. Collaborative learning may be thus defined as the acquisition of knowledge, skills and attitudes by individuals through collaborative group interaction aimed at creating a product or service or providing a solution to a certain group task [9].

Please use the following format when citing this chapter:

Banzato, M. and Constantino, G.D., 2008, in IFIP International Federation for Information Processing, Volume 281; *Learning to Live in the Knowledge Society*; Michael Kendall and Brian Samways; (Boston: Springer), pp. 209–216.

Fig. 1. Pyramid: collaborative, assisted, autonomous learning [9].

The collaborative model places interaction between tutors and learners at the very core of e-learning as instruction in virtual spaces or on virtual platforms. The added value of this active and joint construction of knowledge (collaborative learning) cannot be reduced to the mere sharing of instructional materials or to individual tutoring. Specific online tutor (OLT) training has become therefore crucial to the success and quality of the process and its outcomes. The importance of OLT competences does not decrease even in the case of blended courses, in which a different and integrated strategic plan is required to mobilise them around set activities. The OLT competence matrix, proposed by Banzato [1], was developed to reflect the abilities needed to design and implement courses to acceptable standards. It was developed, and has been tested, in international online university environments of Veneto's SSIS ONLINE, ITALS online master's programme, courses and OLT master's courses in Italy, Spain, Portugal, Brazil, Paraguay and Argentina, to name but a few. We are currently involved in ALFA-Miforcal, a project in which universities from six European and Latin American countries take part, whose main features will be discussed.

Beyond the necessary and sufficient conditions for OLT training, the competence profile or matrix points to professional qualification in order to ensure quality education. The evaluation of online tutoring should be conceived not only in terms of the dynamic selection of the agents that will devise and implement instructional activities, but also as an opportunity to make use of the strategic instruments of continuous quality improvement. The issue of OLT certification, which appears as central to e-learning quality management systems, needs therefore to be addressed. Quality OLT training is key to intervention strategies, constituting a chief priority of all the systems proposed at the international level (i.e. the EQF in Europe).

Only an accurate definition of the matrix of OLT competences and roles will enable the construction of different competence profiles, especially in relation to quality education standards such as personalised instruction and the encouragement of critical and creative thinking. Taking into account both the current literature and

our own work, the paper put forward a conceptual framework that employs the OLT competence matrix [1] to evaluate OLT training programmes with regard to the effective and differentiated instruction provided. This will impact on online tutor selection, ensuring that the candidates' competence profiles meet the requirements of educational institutions. The framework consists in a knowledge, skills and competence matrix that accounts for about 500 OLT micro-competences seen – beyond any behaviourist connotations- as valid and reliable indicators of middle- and higher-order competences. Thus, we offer an analytic approach and an instrumental matrix that may be integrated or completed with other instruments in different instructional contexts or situations.

2 The online tutor macro-competences matrix

The online tutor macro-competences matrix [1] has been conceived as the three dimensional product of 4 knowledge dimensions, 7 competence areas and 4 macro-phases of the training process. Fig. 1 represents the product of the first two. The first group includes: (1) theories of e-learning environments; (2) theories of online instruction design; (3) social theories of Internet-mediated communication; (4) theories of e-learning media. The second group consists of: (A) management and control of the learning processes; (B) implementation of differentiated instructional methodologies; (C) effective communication with e-learners; (D) efficient use of the e-learning environment; (E) organization and timing of tutoring work, activities and resources; (F) information technology support (help desk), and (G) applied research and testing of new standards. The resulting 28 macro-competences are developed through the macro-phases of the training process in which tutors are daily involved. For the sake of simplicity they have been summed up as: (1) diagnosis/prognosis, (2) planning, (3) delivery, (4) monitoring and evaluation. Thus, 500 micro-competences and micro-skills have been obtained.

Our three-dimensional matrix provides a structure to describe all OLT profiles, and not just that of the ideal tutor. Even experienced tutors do not necessarily master all the professional skills in terms of knowledge, competence and ability. The whole training staff is often responsible for instructional decisions and actions, which are based on context requirements, project/programme demands, etc. Furthermore, no instructional system, no matter how complex, calls for the simultaneous exercise of all the skills. But while low-skilled tutors could distribute curriculum content materials and provide learning checks, a higher level of expertise would be needed to build a learning community and facilitate interpersonal relations. Sometimes novice tutors can keep forum interaction going, but in other cases specific micro-competencies are required to encourage the development of higher-order thinking skills, such as metacognition.

Online Tutor Macro-Competences Matrix (Banzato M., 2007)

Knowledge / Areas of competence	01 Theories of education in elearning environment	02 Theories of instructional design (ID)	03 Theories of social communication network	04 Theories of virtual media environments
A. Managing the processes of learning on-line.	**A-01** Able to understand process of learning online, assessing/evaluating human/professional/cultural students' needs.	**A-02** Know how to teach in relation to instructional design (ID) choose by course	**A-03** Able to build a social network and to support the growth of social group.	**A-04** Able to create and introduce links between topics and online resource.
B. Using differentiated teaching methodologies.	**B-01** Able to design and plan different types of learning activities (ID) in relation to the models of the project.	**B-02** Able to teach and mange individual and collective educational activities (ID).	**B-03** Able to interact and diversify communication in relation to the groups and ID.	**B-04** Able to choose specific software tools to develop learning activities (ID).
C. Communicating online in effective ways.	**C-01** Able to establish meaningful relationships with students: create a sympathetic and positive atmosphere in virtual classrooms.	**C-02** Able to organize and support individual or group communication in learning activities (ID).	**C-03** Able to organize social events to raise the indices of social presence.	**C-04** Know how to detect appropriate media (e.g. audio, video etc.), social software, spaces/times of communication.
D. Using of the virtual learning environment in efficient ways.	**D-01** Know how to design online learning activity in efficient ways in different learning platforms.	**D-02** Know how to teach online learning activities (ID) in relation to elearning platforms.	**D-03** Able to detect social ideas (knowledge sharing), develop arguments, promote valuable threads.	**D-04** Able to draw on different technological systems: e.g. adaptive systems, tutorial; simulations, games etc.
E. Planning own workplace activities, time, resources.	**E-01** Able to design curriculum and sequence content.	**E-02** Able to evaluate and assess learning activities (ID).	**E-03** Know how to devise instructional and social activities.	**E-04** Able to programme media tolls and platform configuration.
F. Providing technological assistance.	**F-01** Know how to organize help desk course for student in relation to the professional/cultural students' needs.	**F-02** Know how and when to use normal and special features of software to help learner's use.	**F-03** Know how to select and suggest social interaction tools and their uses.	**F-04** Able to use software to create and manipulate locations in space for elearning platforms.
G. Developing research.	**G-01** Being determined and motivated to explore new learning ways in virtual environments.	**G-02** Being able to try out new learning models (ID), methods and roles.	**G-03** Being able to explore and to try out the social network and communication features.	G-**04** Being able to try out and to implement new media tools and media instructional use

3. Linking tutor competence profiles and e-learning instructional design models

The pyramid model shows three clearly defined e-learning types or systems consistent with different instructional design models and tutor competence profiles. The matrix model shows the micro-competences obtained by crossing online education knowledge areas with the whole range of instructional and curriculum action (macro-competences). It is put forward as a heuristic tool to enquire into the micro-competences found in each tutor competence profile.

Instructional design models are theoretical hypotheses, i.e. conceptualisations arising from the application of instructional models to concrete e-learning systems, each with its own peculiarities and constraints. Their outcomes may therefore be empirically assessed, and thus they are both heuristic and experimental in nature. The instructional design models proposed specify those represented in the pyramid.

OLT competence profiles no doubt underpin our connection of the three groups of models. Within a holistic framework, the matrix provides a 'universe' of competences that may be used to identify the capabilities included in each ideal profile or to assess OLT's concrete skills. Heuristically, it might be seen as a neural network, in which most frequently activated nodes (micro-competences) would make up a basic profile, whereas those that are only sporadically operational would give rise to differentiated profiles, whose structural and situational contexts could be analysed. This might have a huge impact on OLT training and selection.

4 E-learning Instructional Design Models and OTL Matrix: The Miforcal Case

The competences matrix has been applied to the European Project Alfa Miforcal [4]. The project aims to design a online training quality program degree for European and Latin American secondary teachers candidates. The project spreads over many research areas, in particular the design of a shared curriculum. The project has not chosen a single model ID, but different training models that extend over the entire e-learning system pyramid [9].

The training program is still in progress, but we can recognize the different tutor profile's choice according the ID.

1) The common curricular area (pedagogical disciplines) would only need tutors that administrate access to instructional documentation and learning activities, answering the student content questions, and testing the student achievement. The tutors/instructors' role does not differ much from that of traditional teachers: they 'produce' lessons that will be delivered through content distribution networks. According to the competence matrix, in this case the OLT should have at least the following competences: A-01, B-01, C-04, D-02, E-04.

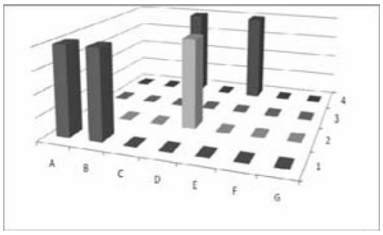

Fig. 2. OLT profile for the self-learning model: 3-D representation of the competences involved

2) For specific curriculum content areas (science, humanities and language) has been chosen a model ID assisted. Online tutors must, in this model, offer educational guidance and assistance to a group of students. They facilitate document content learning and the sharing of views and experiences among the participants. It is not their job to provide information technology support, in which they differ from technical assistants/operators, or to coordinate collaborative work. The basic OLT skills required by the model, as can be seen in fig. 3, are: A-01; A-02; A-04; B-01; B-03; C-01; C-02; E-02; E-03. Our graphical representation does not include instructional design (E-01, E-02, E-03, E-04) or advanced (G-01, G-02, G-03, G-04) competences, such as subject matter research.

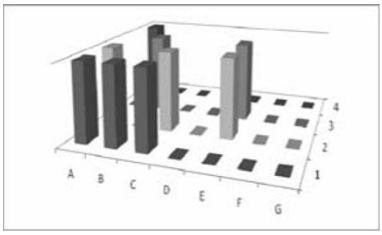

Fig. 3. OLT profile for the assisted learning model: 3-D representation of the competences involved

3) Otherwise, for laboratories areas have been chosen a collaborative learning model. The OLT, as moderator, focuses of the organization and management of collaboration and cooperation of the working groups. This model has been borrowed, as some writers point out, from communications and group dynamics studies. The minimum OLT competences required by these learning communities can be seen in fig. 4: A-01, A-02; A-03; A-04; B-01; B-02; B-03; C-01; C-02; C-03; C-04; E-01; E-02; E-03; F-03; G-02.

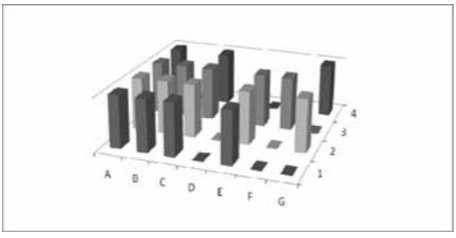

Fig. 4. OLT profile for the collaborative learning model: 3-D representation of the competences involved

5 The matrix and the construction of differential profiles

The competence matrix might prove helpful in constructing OLT differential profiles, insofar as:
a) It provides guidance on theoretical and practical issues. Instructional designers and planners can use it, for example, to assess the impact of tutor performance in online courses on the other components of the instructional system.
b) It can serve as a monitoring instrument for project managers seeking to maintain instructional system quality while focusing on possible solutions to specific problems or necessary adjustments.
c) It could even help design e-learning environment simulations for OLT training purposes.
d) Finally, it constitutes a powerful heuristic instrument for tutor (self-) evaluation and, therefore, may contribute to the development of a more balanced professional profile and competence portfolio.

6 Conclusion

We have outlined three approaches to e-learning systems grounded in three different theoretical perspectives. Their main features have been discussed in order to show that they do not exclude but rather complement each other.

Therefore we suggest crossing the global theoretical models (e-learning pyramid) with specific ones (profile matrix and instructional design models), which will enable an in-depth theoretical and practical consideration of conceptual structures. This in turn will provide functional quality criteria for e-learning systems designers and those in charge of course coordination and tutoring management.

Our proposal aims at developing efficiency hypotheses, concepts and criteria in order to work out operational management and instruction profiles in the competence, procedure and strategy areas. This will enable the construction of e-learning environments centred on quality teaching and learning processes.

The instructional design models applied within the framework of the Alfa Miforcal project show how the competence matrix captures the concrete OLT profiles ‘in action’. Our goal has been to test the performance of OLT profiles as well as of e-learning environment design instruments.

The synergy resulting from the interplay among the competence matrix, e-learning instructional design models and e-learning environments will make it possible to assess instrument potential and conceptual schema appropriateness as well as their limitations, with a view to improving them.

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In this paper, Monica Banzato wrote the paragraphs: 2, 5 and 6; Gustavo D. Constantino wrote the paragraphs 1, 3 and 4.