

A PROBLEMATIC TEACHING MODEL FOR THE IMPLEMENTATION OF E-LEARNING FORMATIVE PATHWAYS

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1. Current situation: between theory and operative implementations

The contemporary e-learning scenario is marked by a strong contradiction between Italian and international technical and pedagogical literature on one hand and the reality of the experiences carried out to date on the other.

From a pedagogical perspective, analysis of the literature reveals four strong points in e-learning, corresponding to as many methodological-didactic categories characterizing contemporary innovative didactic practices. In brief, these categories relate to the concepts of individualization, personalization, constructive/socio-constructive approach, student/students and students/teachers educational interaction. Since we are dealing with complex categories, it is worth briefly analyzing their internal problems and the gap between theory and practice in e-learning settings. In any case, their usage must include structural integration and cannot stick to single educational experiences of the additive-linear kind.

1.1. Individualization

The formative category of individualization seeks equal formative opportunities for the learners and deals with the need to use differentiated didactic strategies in order to allow all the students to achieve the same goal. The didactic concept which supports this category envisages the very same formative objective (knowledge or competence) for all the students, but differentiated didactic procedures (timing, materials, spaces, exercises...), reflecting student individuality. This allows everybody to reach the same objective.

In theory, e-learning grants maximum individualization, since it can offer many didactic paths simultaneously, all aiming to achieve the same goal.

In actual fact, this possibility is almost never exploited or is trivialized in a limited choice of alternatives which hardly exploit effective reading tools of entrance levels for single students, offer scanty formative evaluation feed-back and remedial sequences and strategies.

1.2. Personalization

The formative category of personalization deals with allowing the students an opportunity to pursue different formative goals according to identical or different didactic strategies. This category supports the didactic notion that the student can bear out the subjective peculiarity of her/his motivations, aspirations and resources in the choice of formative goals s/he needs to pursue and in adjusting the didactic strategies required to reach them. Personalization strategies aim to give the utmost value to individual diversity and structurally cater for the possibility of choosing parallel paths and directions and concentrating on personal interests.

In theory, offering a very rich number of options, e-learning environments permits the highest degree of personalization.

In actual fact, the presence of didactic material and pathways left to the student's individual free choice is hardly noticeable: this seems to reflect an unplanned didactic redundancy rather than a programmatic choice to provide the student with an effective opportunity of taking part in the definition of formative goals and didactic strategies stemming from personal expectations and motivations. Orientation tools to guide the student in the personal shaping of learning paths are lacking, as are comparative evaluation models of the competences acquired through the fruition of different paths.

1.3. Constructive/Socio-constructivist approach

The constructivist approach overturns the logic of the traditional top-down curriculum (which moves from the syllabus to the pupil, requiring mainly informative skills from the teacher and mainly reproductive diligence from the learner). At the centre of the learning path is the student's active role (possibly in a socio-collaborative context) in the construction of her/his own knowledge. This role can be spelled out when the learning path stresses the learning process rather than its product and when the student's personal experience, her/his research activity and reflection are constantly emphasized.

The pedagogical theory of e-learning asserts its enormous potential in a constructivist and socio-constructivist direction. Nowadays theories of learning and practice communities can be implemented in a rich frame of applications which overcome the old dimension of forums and open up effective collaborations.

In the most common e-learning practice, apart from isolated cases of advanced University and extra-University hyper-experimentations, the constructivist dimension turns out to be substantially absent. Most didactic pathways tend to be merely reproductive; in addition, they are contextualised in a vaguely "active" behaviouristic model rather than focusing on the student's participation (as an individual or in group) in the construction of knowledge. In most cases, we find applicational exercises limited to the control and/or reinforcement of the reproduction of notional knowledge or of guided itineraries towards unquestionable knowledge. These seldom involve reflection activities or procedures of a metacognitive kind, aiming to make the student aware of the competences s/he has reached and the path s/he has carried out to reach the scheduled tasks.

1.4. Formative interaction student/students and students/teachers

In conventional secondary education settings, the interaction between the student and the teacher is mainly limited to face-to-face communication and to testing/assessment of acquired competence. Student/teacher encounters supporting learning and remedial tasks are always erratic and difficult to organise on a technical level.

The scientific literature agrees on defining the possibility of granting structurally continuative forms for the student/teacher relationship. This requires the presence of differentiated teaching/assistant roles: the tutor, the mentor, the coach. Moreover, the planning of a didactic high-quality e-learning environment today can include the conduction of adequate collaboration bordering onto cooperative learning (from collaborative study to the experimentation of differentiated roles in the students' group, to the sharing of common researches, etc.).

In actual fact, in the contemporary e-learning practice we can note the presence of some integrated help for students through accurate and timely technical-administrative answers, the presence of FAQs (Frequently Asked Questions) and definitions of specific learning support roles, such as: tutor, disciplinary expert (less frequently mentor and coach). These educators seem to pertain more exclusively to the domain of support and reproduction facilitation. As for the students, interaction

possibilities are mainly supplementary and independent from the algorithm of LOs which constitute the lesson.

2. A problematic didactic model for the realization of e-learning formative paths

2.1. Guidelines for a model for the realization of e-learning formative paths

The idea of using a problematic didactic model in e-learning formative paths again echoes pedagogical problematicism topics and defines a complex hypothesis which can emphasize the integrated coexistence of different didactic strategies referring back to a problematicist matrix. The theoretical foundation of the model explicitly recalls the main didactic categories mentioned above and their critical interaction.

The starting point of the model described here is the possibility defining three main Learning Objects typologies, focusing respectively on the object, the process and the subject of learning.

LO typology centred on the object of the learning is a part of the so called “top-down curriculum”. Its organization stems from the specific subject contents taught. Its formative goal is based on information/reproduction since it is meant to provide the student with learning units which have to be reproduced in a precise way. It can deal with basic or complex alphabets, specific notions, competence or professional skills. The reference model of this didactic strategy, in a conventional formative setting, is the Teaching Unit in its different implementations. Among these, the most rigorous is the so-called “Mastery Learning”, which ensures the highest individualization level.

The LO focused on the learning process is a “bottom-up curriculum” application. It moves in a constructive perspective, which is based on the so-called “scientific thought”. By “scientific thought” we mean a knowledge construction modality which uses specific research methodologies compatible with the specific subject contents. In other words, it encourages the use of direct investigation tools which allow knowledge conceptualization, generalization and portability.

The Learning Object based on the motivations and “emotions” of the learner deals with motivational and emotional features in evaluating the efficacy of the learning process. This problem has traditionally been considered central in educational research. This kind of LO pursues activation of competences which are not easily measurable because of their close connection with the individual. The main didactic activities are represented by cultural awareness activities, i.e. stimulation strategies to touch the learner’s personal sphere.

As we have stated so far, the three LO typologies rise from different learning interpretations and thus imply different formative goals. In a problematic didactic model the main issue, rather than deciding which is the best LO typology, is to define the specificity of the single typology in order to schedule lessons which can include the three LO typologies described, according to the following criteria:

- disciplinary specificity of the object of the learning;
- explicit goals of the course;
- learners’ age and initial competences;
- main features of the context.

The main idea of the problematic model is that one cannot acknowledge a high formative quality to coursework which does not offer any of the three LOs described above.

References

- ARDIZZONE, P., RIVOLTELLA, P.C., *Didattiche per l'e-learning. Metodi e strumenti per l'innovazione dell'insegnamento universitario*, Carocci, Roma, 2003.
- BONANI, G.P., *Formazione digitale. Progettare l'e-learning centrato sull'utente*, Franco Angeli, Milano, 2003.
- DE VITA, A., *E-Learning: parole e concetti*, Franco Angeli, Milano, 2004.
- FINI, A., VANNI, L., *Learning Object e metadati*, Erikson, Trento, 2004.
- FONTANESI, P., *E-learning*, Tecniche Nuove, Milano, 2003.
- MARAGLIANO, R. (a cura di), *Pedagogie dell'e-learning*, Laterza, Bari, 2004.
- MERRIL, M.D., *Instructional transaction theory. Instructional design based on knowledge object*, (senza data di pubblicazione), disponibile sul sito <http://itech1.coe.uga.edu/itforum/paper22/paper22a.html>
- MERRILL, M. D., *Knowledge objects and mental models*, 2000, in D. A. WILEY (ED.), *The Instructional Use of Learning Objects: Online Version*, disponibile sul sito <http://reusability.org/read/chapters/merrill.doc>
- NATALI, A., *Architettura dei sistemi di e-learning*, I Corso di formazione introduttiva alle problematiche didattico-tecnologiche dell'e-learning (Università di Bologna), Modulo 17, 24 settembre 2004.
- WILEY, D. A., *Connecting learning objects to instructional design theory: A definition, a metaphor, and a taxonomy*, 2000, in D. A. WILEY (ED.), *The Instructional Use of Learning Objects: Online Version*, disponibile sul sito <http://reusability.org/read/chapters/wiley.doc>
- WILEY, D.A., *Learning Object design and Sequencing Theory*, June 2000, disponibile sul sito <http://wiley.ed.usu.edu/docs/dissertation.pdf>
- WILEY, GIBBONS, RECKER, *A reformulation of the issue of learning object granularity and its implications for the design of learning objects*, in D. A. WILEY (ED.), *The Instructional Use of Learning Objects: Online Version*, disponibile sul sito <http://www.reusability.org/granularity.pdf>
- Guerra, Luigi e Fabbri, Manuela e Lovece, Stefania e Maeran, Gilda e Pacetti, Elena e Zambotti, Francesco: *Analisi della letteratura in materia di Learning Objects* 08 Novembre 2006, Materiali di ricerca in corso, in: *Ricerche di pedagogia e didattica*, web magazine internazionale open access, <http://rpd.cib.unibo.it/>
- Guerra, Luigi e Fabbri, Manuela e Lovece, Stefania e Maeran, Gilda e Pacetti, Elena e Zambotti, Francesco, *Analisi di un campione significativo di Learning Objects* 08 Novembre 2006, Materiali di ricerca in corso, in: *Ricerche di pedagogia e didattica*, web magazine internazionale open access, <http://rpd.cib.unibo.it/>