OPEN DISTANCE LEARNING AND KNOWLEDGE-BUILDING IN COMPUTER CONFERENCE DEBATE

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Introduction

The Moratti-Stanca law of April 2003 controls university e-learning in Italy. At the same time, many Universities and schools are activating on-line courses and post-degree offers. The necessity to experiment curricula and to create professional figures for on-line training in accordance with the above-mentioned norms cannot be put off.

In response to this necessity the University of Udine organised, in the academic year 2002-03, the Master in Open Distance Learning which has the objective of preparing instructional designers and operators for training courses on the net. The figures required for e-learning need to have complex profiles, ranging from designing the training scheme to managing, tutoring, evaluating and creating environments, also technologically, on the net. The figures the master forms have two directions which take into account the initial training: one, more aimed at the instructional design with basic knowledge also in the technological sector, the other aimed at creating the on-line environment with attention to the problems of training.

The Master consists of 8 sessions at which it is necessary to be present, participating in the Open distance learning group activities of close examination and designing. Each of the eight sessions is dedicated to a single theme: on-line interaction, the learning environments, the preparation of educational material for on-line training, tutoring, economic evaluation and organisation problems of on-line courses. In addition, there are themes which run through the various modules sideways, giving coherence to the whole course. Among these themes are the following:

- the similarity between the educational model/project and the structure of the learning environment;
- the connection between the didactic material and the interactive and cooperative activities on the net;
- models relevant to debates on the net and building up knowledge.

Models for interacting on the net

The same Moratti Stanca law, among the basic elements for open distance learning courses establishes:

- the use of standard didactic contents, interoperable and organised in modules possible to personalises in accordance with the characteristics of the end users and with the issuing channels; (Decree 17 April 2003)
- technologically advanced communication systems, with the aim of advantaging interaction of the students with the teachers and among the students themselves; (technical attachment)

As for the features the components must have, the law refers to the SCORM standards. These norms, similar to others providing instructions prescribed for this sector, focus the attention on the Content Aggregation Model.

The SCORM Content Aggregation Model represents a pedagogically neutral means for designers and implementers of instruction to aggregate learning resources for the purpose of delivering a desired learning experience.

The possibility of a pedagogically neutral model is a little perplexing. The structure proposed is ramified and the single objects are modular and reusable (above all, at SCO and SCA levels).

Such a structure represents a frame for general reference. Furthermore, the technical description of the objects and of the meta-data is very often confused with the pedagogical description. There is a lot of shifting between the two levels whilst at other times it is not underlined, or made to seem not understood, how a technological choice influences the choices concerning instructional design.

Moreover, only certain modes of behaviour are advised, certain activities for interacting
(labelled as simple because they include a limited number of widely used sequencing behaviour modes):

In particular, IMS SS does not address, but does not necessarily preclude, artificial intelligence-based sequencing, schedule-based sequencing, sequencing requiring data from closed external systems and services (e.g., sequencing of embedded simulations), collaborative learning, customized learning or synchronization between multiple parallel learning activities.

The main model is the one for educational material followed by a check test. The Moratti Stanca law, from this point of view, is more open and suggests:

- **forums**: the tutors identify the most significant themes of the course and periodically open themes for discussion in the forums, in which they invite the students to report their problems and encourage them to reply to each other;
- **virtual meetings**: the instruments for synchronous interaction can be used for periodical “virtual receptions” at which students ask, in chat rooms (and with any necessary support from the other instruments shared), the tutors their questions.

And for the evaluation beside the tests proposes:

- holding virtual interrogations, both asynchronous through forums (in which the tutor will be able to ask a specific question and then check the reaction of the students) and synchronous.

### Research questions

The instructions and the regulations, also legislative, for this sector cause two problems to arise for designing on-line environments:

1 – What relationship must there be between didactic material and interactive activities?
2 – For the interactive activities (for example, web discussions for building up knowledge) what models can be constructed?

The descriptions or the instructions relevant to such activities, in the majority of cases, provide information of a technological nature or list the tools to use. The presence of a tool (for example, the web forum, the chat room, etc.) does not guarantee the possibility to develop an interactive activity. It is necessary to specify the teaching activities and depending on these, the tools used.

In this session we would like to describe certain models illustrated and experimented in the master, which try to clarify the modes with which to structure a debate with the scope of building up knowledge. Such a mode has also been used in other contexts (not only in the master) and with different actors: students of various ages, in schools from elementary to university and in on-the-job training for teachers and other professional people.

### Theoretical premise

The theoretical premises are:

- knowledge is not a process or an individual possession; knowledge cannot be transmitted but is constructed socially (Gergen, 1997);
- the processes of sharing and negotiating are essential for the social construction of knowledge (Pontecorvo, 1999);
- knowledge is a conscious process of communities and of the subjects which are part of them (Wenger, 1998; 2002);
- on-line asynchronous tools offer useful instruments for sharing and negotiating knowledge (Calvani, 2001);
- the writing modes of different tools observe different rhetorics and the comparison between writing modes which use different tools for the same theme allows going through the theme itself again (Wittgenstein, 1993);
- net environments provide the scaffolding for building knowledge (Rossi, 2002);
- designing as a continuous interpretation of the provisional products (Gero 2001)

### Operating modes

In the Master in Open distance learning, three models were experimented for the discussion
and construction of knowledge on the data communication network. The following are descriptions of the phases of which the various models are made up.

**The initial phase** is always a brainstorming session on the net. The instrument used is a web forum structured in such a way as to highlight the form of the debate, i.e. it makes it possible to visualise the structure of the debate, which highlights how the interventions are connected among themselves (the structure shows if each intervention is the first regarding a theme or if it is the reply to another intervention).

The input for the debate can be diverse: a text, a problem arising in the community, the intervention of a subject of the community written in a previous forum, a theme dealt with only in part by the community, a head-on lesson. The debate has a set time.

Debates on the net make it possible to present various positions, to specify them in the debate, to acquire more awareness of the starting idea, to point out the limits and the problems of the initial positions, to use interpersonal comparison to understand one’s own position better and to observe the same themes from other points of view.

In experiences had with students both at school and at university and in on-the-job training, the modes of communication in forums (as compared to reports or other texts to be read by the teacher) they see in their own equal the main interlocutor and this facilitates and explanation not conditioned by judgement.

At the end of the debate, there are well-defined and well-structured positions. The debate, at this point, cannot develop any further for two reasons:

- the ramified structure of the forum does not allow to reticulate the various ideas which have arisen, if in different branches;
- a step forward in awareness occurs by breaking with the ramified structure and building up a net structure.

**The second phase** consists in the construction of syntheses. Such syntheses are done by small groups (2/4 students).

The synthesis is given by constructing a thread which runs through the debate itself and connects messages present in different threads of the web forum, producing different interpretations. For each debate, different syntheses may be constructed.

The experimental modes for building up the syntheses were three:

- building up a text which summarises the concepts arising from the debate; each concept is connected by a link to the most significant messages with respect to the concept itself. With respect to textual synthesis, this mode takes the maximum advantage of web potentiality: the possibility to insert links to original messages from the web forum avoids the extender of the synthesis interpreting the message, even if he/she provides a reading key. Moreover, the possibility of linking directly to messages allows a textual connection, less strict than that obtained in a linear text and therefore allows connecting various styles and modes for writing.
- constructing a graphic map whose junctions are the links both to messages and to the texts which connect the junctions on the map; (a tool thought of by us makes it possible to save messages from the forum or documents like the junctions on a map). Also in this case, the synthesis consists of a structure which makes the debate become a model.
- discussing in chat rooms among a number of students the main themes which came up in the forum and analysing the themes. Saving the text of the chat session and subsequently inserting the links into the text, thus producing a synthesis of the forum.

**The third phase** of the debate consists in discussing in a forum the syntheses produced.

As mentioned previously, there is the possibility to produce various syntheses, different interpretations of the same material; the comparison among these becomes essential for collecting the various interpretations and rereading the material from various angles. The role of the final forum makes sense, above all, regarding the construction of knowledge shared by the community in which it is held. Even though many interpretations are possible, the debate allows not so much to decide which of the various syntheses best represents the debate in the forum but allows:
• to explain, favouring in the negotiation a diversity of interpretations and therefore sharing the various analyses constructed;
• to insert new knowledge into the reticular structure of the knowing of the community, which thereby becomes collective wealth.
• Very often, in fact, even an ample debate does not produce in the community a higher level of quality with respect to common wealth. Such models are effective if the objective of the training course is not so much to transfer knowledge but to build up knowing, which takes into account also the experiences of the subjects being trained. This mode is particularly useful in on-the-job training where valuing experiences and generalising them (thanks to the negotiation of the meanings with other subjects or to the comparison with theories) are supporting elements.

From the technical point of view, the environment becomes essential for allowing reticulation among the tools, i.e. the possibility to connect automatically the material in various communication instruments; messages from the forum, junctions on the map, documents inserted by both those holding the course and the participants can be used in different tools from the original one, linking among them. There is not always the network of tools in on-line environments; in many environments the various tools are seen as “closed boxes”. On the other hand, integrated and reticular designing favours interactivity and synergies. In fact, it is necessary to bear in mind that the writing modes in a document, in a message in a web forum and on a map are not alike and such differences allow to highlight the different aspects of similar themes.

**Examination of the activities**

The activity carried out was divided into three parts:

a) Individual reading of certain material and listening to a videoconference and a debate with web forum regarding the concept of e-learning (in 12 days the 14 course participants put in 43 interventions; each message was read on average 37 times).

b) Forming small groups to process the synthesis of the web forum debate with various tools, maps, texts, chat + texts). Set time: 9 days;

c) Debate by all the group on the various syntheses to analyse how the various tools can determine the production of different communications (the 37 interventions were carried out in 7 days).

The first debate developed in accordance with well-defined thematic blocks. In each of these, the various course participants dealt with a number of problems connected with e-learning. The same themes are found in the various syntheses, even if dealt with in a different way. From the interventions in the final web forum, the course participants state that the product of the activity carried out with text, and chat + text is substantially similar. The difference is given mainly in the style of who did the writing. A group summarised the various themes, providing a general description. Another group did a synthesis divided into topics which resulted more divided up. The difference one notices in particular, is in the meaning of a link which in a first case, is used to confirm what was stated previously, in a second case it allows a wider vision of the problem referred to.

In the maps are clear the nestings, giving immediately the reading of the theme blocks and of their development in sub-topics. The graphic structure, which adds a other level of communication, becomes determining. The map, unlike the other syntheses, offers the possibility to visualise immediately how the theme was developed and allows the reader to choose the beginning of the reading, constructing his/her own logical route through the themes.

The effectiveness of syntheses cannot be evaluated without making specific considerations: from the discussions among course participants, it has emerged that it must be defined in relation to three different interlocutors: for the course participants who produced it (important therefore are the routes and strategies used), for the course participants who read it and are however familiar with the topic dealt with (in this case, the clarity of communication and the order of ideas are important), for those outside the activity, coming into contact with the topic through these writings.
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