HARMONIZING THE ONLINE AND FACE-TO-FACE COMPONENTS IN A BLENDED COURSE ON EDUCATIONAL TECHNOLOGY

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ABSTRACT

This article analyses the relationship between the face-to-face and the online components of a blended course in Educational Technology, run by the Institute for Educational Technology for the local Postgraduate School for Secondary Teaching. The course designers developed criteria for harmonising and integrating the two educational modalities, with the aim to take advantage of their specific features. These criteria derive from a multidimensional model that comprises four aspects: course themes and content (cognitive dimension), teaching and learning strategies (teaching dimension), interaction among participants (social dimension) and reflection on the learning path and the teaching profession (meta-cognitive dimension).

Keywords: Blended learning; Teacher training; Educational Technology; Computer-Mediated Communication; Community of Inquiry.

INTRODUCTION

The expression *blended learning* has been used with a variety of meanings to refer to different kinds of combinations of instructional modalities (or delivery media), of instructional methods, or of online and face-to-face instruction (Bonk & Graham, 2006). This paper adopts the latter meaning.

According to this definition, blended learning courses can be situated anywhere along a continuum ranging from an exclusively face-to-face (henceforth f2f) approach to an entirely online one. From an educational perspective what changes is the way the two components are combined, their degree of integration and when either one is used in order to take advantage of the strengths of both (Groen & Li, 2005).

In contrast to single-modality training models, the blended model actually requires specific instructional design criteria and methods. In fact, pedagogical decisions imply a revision of concepts and a reorganization of teaching and learning dynamics. These, in turn, depend on a variety of conditions, such as the learning needs, the context requirements, the nature of the contents to be delivered, the degree to which they are to be covered, the resources available, etc.

Blended learning seems to have many features valued by adult learners, in that it generally offers content options, the possibility to adopt a variety of learning strategies, to combine guidance and self-direction of the learning process, and the chance to join a learning community (Ausburn, 2004). According to Garrison and Kanuka (2004), the blended model promotes the development of critical thinking and higher order learning skills, taking advantage of the self-regulated learning abilities that are typical of adults.

This study focuses on a post-graduate course for pre-service teachers, and uses it as a case study to support the claim that the adaptation of the Community of Inquiry model (Garrison, Anderson, & Archer, 2000) can be used as a guiding principle to design formal training based on collaborative activities. This model is made up of three elements that are considered essential to an educational transaction: the *cognitive*, *social* and *teaching presence*. Through these components the model provides a way to understand and analyse the intertwining of relational, emotional, social and cognitive factors in a Community of Inquiry. Enriched by a fourth element, *meta-cognition*, the model was used to design our course and subsequently to analyse it. The reason why meta-cognition was regarded as an essential element and therefore added to the model is that the training course was addressed to trainee teachers, and the very nature of their future job imposes in-depth analysis of the learning processes, including their own. The meta-cognitive component of the course served the purpose to stimulate critical reflections on the approach adopted in the course, on its contents, on their own expectations and on the relevance of educational technology within their training.

METHOD

The Educational Technology course of the Liguria Postgraduate School for Secondary Teaching has been delivered by the Institute for Educational Technology of the Italian National Research Council for seven years. Each year the course was re-designed according to the changes occurred in the context and on the results obtained by the formative evaluation of the previous ones. This paper focuses on the course run in academic year 2004-2005. However, the aim is not to describe the course but rather to focus attention on the delivery strategies and on the instructional design decisions. These were informed by a strong need for a modular and flexible learning process capable to meet the diversified needs of a large and heterogeneous target population (Delfino & Persico, in press).

Course objectives and approach

Aim of the course was to bring participants to a good degree of mastery of the educational use of ICT. This can only be done through an experiential approach, providing them with the opportunity to try first-hand innovative approaches and technologies. Previous years experience had revealed the trainees curiosity and interest towards new learning models, included online learning, and pre-course surveys had proven their increasing familiarity with network applications and ever wider access to the Internet. This encouraged us to introduce online modules in the course. On the other hand, the persistence of some resistance to this delivery mode (e.g. Wood, Mueller, Willoughby, Specht, & Deyoung, 2005) suggested caution and brought us to decide to deliver the course with a blended modality. As a matter of fact, the f2f component revealed itself so important that the choice of the blended approach would probably be confirmed even if resistance to online became unsubstantial.

The theoretical framework of the online component of the course was socio-constructivism, according to which learning is a dialogic, social and cultural process, whereby the learners and their tutors form a community, therefore providing social, emotional and cognitive support to each other (Scardamalia & Bereiter, 1994). F2f sessions, instead, were very hard to run with collaborative learning methods, due to the large dimension of the students cohorts (about 150 per year). As a consequence, most f2f sessions were fundamentally lecture-based.

Course participants

Ninety-five students participated in the course. They were 77 females and 18 males and belonged to different subject areas (humanities and arts, math and sciences, human science, and foreign languages). They were aged between 24 and 45 years (average age 31.3, SD 5.3).

The course schedule consisted of the integration of five face-to-face meetings with twelve weeks of online activity through the use of a Computer-Mediated Communication (CMC) platform (*Centrinity FirstClass*). F2f sessions were devoted to lay the bases for both a better understanding of the subject (from a theoretical point of view) and an effective participation to online activity (from a practical point of view). Online work was mainly collaborative and the students cohort was segmented into virtual workgroups each supported and coordinated by a tutor. Learning activities involved web-navigation, readings, collaborative production of documents and peer review, analysis of online learning resources. Communication was mainly asynchronous, though synchronous communication in the form of chat was occasionally used.

Case study method

A descriptive case study supported by both qualitative and quantitative data has been carried out. Qualitative data were obtained through the analysis of written interactions between course participants, while quantitative data derived from questionnaires filled in by trainees at the beginning and at the end of the course.

RESULTS

The four components of the learning experience - the cognitive, the social, the teaching and the meta-cognitive - are examined in the following, focusing on the aspects that informed the decisions taken to integrate and reinforce the strengths of both f2f and online activities. In particular, we will describe the activities carried out (the cognitive dimension), the approaches and strategies adopted to facilitate learning (the teaching dimension), the participants' interactions and the constitution of an online community (the social dimension); and the reflection on the learning process and on its effects (the meta-cognitive dimension).

The cognitive dimension

The nature of the subject matter influenced the design of the course. Educational Technology, in fact, is a wide and complex domain, hard to cover in a short course like the one in question. According to Issroff and Scanlon (2002), it includes a set of pedagogical and methodological skills needed for a competent use of the various strategies, techniques and media in teaching. It was therefore necessary to provide a general idea of the contents, but also to identify some indefeasible concepts to be dealt with in greater detail than others, posing the basis for subsequent autonomous learning. Very tight budget limitations and the need to address a diversified population were the main contextual constraints taken into consideration for course design.

The instructional design process lead to the definition of five different modules: (1) introduction to educational technology and presentation of the course; (2) analysis and evaluation of a set of web resources for schools and for teachers; (3) web-based educational activities for secondary school students, with particular emphasis on information seeking and problem based learning (e.g., the webquests; see Pohan & Mathison, 1998); (4) case studies of best practice in collaborative online learning; (5) course conclusion and final reflections.

The collaborative educational strategies aimed to promote active participation by encouraging exchange of ideas and reflection and by fostering participants' interdependence. Online modules involved small workgroups to facilitate participation to the learning process and attainment of specific objectives. These educational choices were rooted in the

following considerations:

- the need for an experiential approach in order to experiment first-hand the proposed methods and techniques;
- the advisability of privileging methodological and educational aspects as opposed to technical and instrumental ones;
- the belief that online educational methods and Communities of Inquiry lend themselves better to in-depth analysis of limited topics difficult to formalise, rather than to the acquisition of extensive, primarily factual knowledge.

The first four modules consisted in a three-hour f2f sessions followed by two or three weeks of online activity. The last module entailed one week of online discussion followed by a final workshop-like session. The lectures meant to provide the general picture of the topics covered in each module, while the online activity served the purpose to carry out in-depth analysis of one or more examples.

The teaching dimension

The above general criterion was used to establish the role of f2f and online activities in the course. However, it is obvious that such principle is not enough to guide all the decisions to be taken when designing a blended course. For example, while deciding the activities to be carried out online, the related social structures must be defined, including the size and composition of groups as well as their reciprocal interactions. In order to obtain a lively exchange, heterogeneous groups of seven/eight people were established and different learning strategies were adopted in each module. Among these

- an alternation of individual and group work was aimed to consolidate and assess specific topics dealt with during f2f sessions or covered in educational materials;
- dialogical, argumentative and peer review strategies were adopted to carry out critical analysis of different learning resources;
- the collaborative production of artefacts within the framework of a role-play activity was chosen to achieve thorough understanding of different technology enhanced learning methods.

The importance given to the discussion within the group and to the collaborative approach is the consequence of the belief that teaching skills to be developed within the course are complex, demanding, and may best be understood if originated from direct experience and from the reflection on it. Regarding the instructional design, an attempt was made to make future teachers aware that there is not always one right-or-wrong choice since each decision is characterized by pros and cons that a good teacher should be able to detect and evaluate. To this purpose, peer interaction can be more effective than listening or reading the experts' opinion, whose point of view is too often assumed as correct. The text that follows reports a message sent by a participant to the tutor who invited other participants to express their opinion on their colleagues' work, instead of giving an immediate feedback (all the excerpts of the present paper are anonymous):

"*in the case of the first activity* [a peer-review of learning resources analysis] *I would have rather had the feedback of an expert on my work. I have much appreciated the peer review I received, and I do not intend to belittle the merits of my colleague, still I am unable to understand whether my work was good, fair, poor or what. I've tried to formulate various hypotheses on this didactic choice (because I do believe it was a choice), but I would like to know what you, colleagues and experts, think about it*" (posted on May 17th 2005).

The online collaborative approach supports the development of those self-regulated learning skills (Dettori, Giannetti, & Persico, 2005), that are generally considered important for teachers' professional development (Watson, 2001). To sustain the birth of these skills during the course, scaffolding and fading techniques were used (Collins, Brown, & Newman, 1989).

Finally, methods and criteria for learning evaluation should be mentioned. The central issue pertains the need for harmonizing the socio-constructivist approach with the need for a summative evaluation of learning which is peculiar to the academic context. The solution chosen for this course reflects a compromise in which the final summative evaluation took into consideration both qualitative and quantitative elements related to participation to each online activity.

The social dimension

The combination of online and f2f seems to contribute to a higher level of socialization and sense of togetherness among participants and, consequently, to increase the quality of learning and the achievement of instructional objectives (Rovai & Jordan, 2004; Aspden & Helm, 2004). The communicative and relational tension occurring in the two components of blended courses seems to produce a sense of belonging which is stronger compared to that in f2f courses or in the online ones.

In order to promote harmony among participants, particular attention was devoted to the design of the social component, acting in parallel on both online and f2f modalities. The measures taken to foster social presence were deemed particularly important due to the high number of participants and to the fact that, although they shared parts of the study curriculum, only some of them had met f2f before this course. The following message backs up this claim:

"this course allowed me to get better acquainted not only with people I used to meet every day without having the opportunity to talk to them but also with people I wouldn't relate to and probably I would never meet again after the end of the course" (posted on June 4th 2005).

Online sessions devoted to familiarization with the platform and socialization within the community of participants were metaphorized, in order to increase the sense of belonging to the community, to provide a framework for role distribution, identity creation and awareness of one's responsibility (De Simone, Lou, & Schmid, 2001; Delfino & Manca, in press). The metaphor of navigation was proposed and thus the course was described as a sea-travel in which each participant-sailor was supposed to choose a boat (Caravel, Cruise liner, Fishing-boat, Motorboat, Sailing boat, Steamboat, Submarine). Afterwards, each group of sailors had three weeks to negotiate and decide on a name for their boat, a motto and a symbol.

Furthermore, all participants were provided with a common Cafè area, where all non-course related discussion took place.

At the same time during f2f sessions an attempt was made to guarantee the continuity of online activity acting on participants' identity, recognisability and participation. For example, to allow participants to identify the colleagues they were interacting with online, they were both given personal badges bearing their names and invited to seat in the classroom according to areas correspondent to the online workgroups. The decision of short-circuiting online working-groups in the f2f sessions was commented by a student:

"it seems to me that the crucial experiment of the course was in the online/f2f relationship, and hence in the "familiarization" area. For this reason, looking back on it, the meeting "to unveil virtual identities" with badges appears very subtle. Who hides behind a name?" (posted on June 6th 2005).

Furthermore, f2f sessions were also an opportunity to stress the relationship between the two modalities through citations from online messages. During the closing session, for instance, funny prizes were awarded to some student teachers according to their mode of participation (e.g., "The keen reader prize" to the participant who had read the highest number of messages, or the "*Tender is the night* prize" to the one who had logged in the course platform most frequently during the night, etc.).

The meta-cognitive dimension

The acquisition of critical thinking skills in the field of education is an essential part of the curriculum of student teachers (Parsons & Stephenson, 2005), for this reason meta-cognitive aspects played a very important role in the course. Since for most of the participants (89% of them) it was the first exposure to CMC in formal learning activities, trainees were asked to share their reflections on the online learning experience by focalizing on the novelty of contents, and on the constraints and potential of asynchronous written interactions in a web-learning environment.

In parallel, another activity was devoted to the analysis of "what" and "how" participants were learning. Since they were free to choose the topics of conversation, some of them gave their feedback on the course method, others focused on the concept of social presence online, yet others gave their opinion on the development of pragmatic and rhetorical skills:

"The course is certainly positive in itself. Being forced to share opinions with other people is sometimes positive in order not to give too much credit to your prejudices, to clarify yourself to yourself, to define better your opinions […]. Having a discussion platform to express ideas, argue, give vent to one's feelings, exchange opinions and reflect is positive. It is a useful exercise to get more practice in calibrating one's words in a clear, unambiguous, inoffensive and still not hypocritical way" (posted on April 28th 2005).

The conclusive phase of the meta-cognitive reflection module took place during the last week of the course and aimed at reflecting on acquired skills, difficulties, satisfaction or dissatisfaction as to expectations and commitments for the future. In this occasion, as it happened in the familiarization activity, each participant was asked to choose again the boat they preferred to conclude their journey with. The gathered information supplied useful suggestions on course evaluation and understanding of the underlying dynamics:

"now, after months and months of SSIS [the Postgraduate School for Secondary Teaching] *and unlike common sense suggests, I feel very adrenalinic... probably because we've learnt to navigate a little bit and hence I feel I can adventure in stormy waters!"* (posted on June 1st 2005).

At the meta-cognitive level the online component effected more than the f2f one, possibly because so many participants, overcoming the distance of place and time, could reflect on and react to each others' postings. However, the role of f2f sessions should not be underrated. Occasionally, latent conflicts or uncertainties about the method were overcome f2f thanks to the possibility of matching meta-cognition and socialization, thus solving complex issues.

DISCUSSION

In order to evaluate the actual balance between online and f2f components in our course, some data were gathered through a

final questionnaire, aiming at evaluating the general acceptance of the course approach, the students' degree of satisfaction and their perception regarding the achievement of the course objectives. Some answers are important to analyse the online/f2f relationship. When asked how they rated the course balance between online and f2f, the average score was 2.9 (SD 0.94), on a scale from 0 to 4 (respectively corresponding to the lowest score and to the highest score). As to the importance assigned to the various learning modes, data confirm the fundamental role of online activities (average score 3.0; SD 3.96), followed by that of educational materials (average score 2.9; SD 1.36) which are ahead from f2f sessions (average score 2.3; SD 0.93), as it could be expected from people able to study autonomously.

The intertwining of online and f2f modalities played an important role in unifying and strengthening the learning experience described here. In particular at *cognitive* level f2f sessions played a contextualizing and propulsive role, inducing curiosity and motivation among students. On the other hand, online activities allowed a good degree of flexibility and self-regulation in choosing both the contents and their level of analysis. At a *social* level online activities governed the process: the long initial socialization phase and the adoption of a shared metaphor were the ingredients for the development of a learning community starting from a large and heterogeneous students cohort. F2f sessions favoured the socialization process as well: as the course went on the participants' pleasure of being together increased, so much so that after a couple of lessons participants asked for real coffee breaks during the f2f sessions in order to get to know their colleagues of the virtual Café. Finally, *meta-cognitive* reflection occurred mainly online, thus sustaining the authors who underline the potential of written asynchronous communication to support deep and meaningful collaborative learning.

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