Ict In The Classroom: A New Learning Environment

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Abstract

This paper present the research carried out by teachers and students of 6 junior high school classes situated in Umbria, on the modern ICT use in didactics. They participated in the project "Cl@ssi2.0" started in the 2009-2010 school year (www.scuola-digitale.it/classi2.0).

The Cl@ssi2.0 project is to be considered as innovative as it applies technologies to the teaching/learning process and promotes efficient learning environments; technologies indeed stimulate students to discovery learning by using several tools (not only books). Discovery learning allows students interacting with the world by exploring and manipulating objects and therefore encourages active engagement. The use of multimedia, hypertexts and interactivity promotes cooperative learning in the classroom and among different groups of students.

In order to efficiently answer the students' needs, the learning process intended as a closed system, carried out within a classroom, as well as a linear-sequential learning planning, have to be overcome.

Students are often defined as "digital natives" as they avail themselves of integrated media in their approach to knowledge, that is discovery and problem solving-centered; in other words, it is net-structured, experiential, cooperative, active and self-organised.

A short questionnaire focused on the students' learning needs and their behavior towards new technologies (143 students) was administered to students.

Classroom observations have been carried out during the a normal school-day in order to better understand the classroom activities and the eventual relating problems and to support teachers in finding the best solutions. Students' focus-groups were carried out in order to capture their perception on experimentation.

To better answer the students' learning and educational needs, to help teachers in teaching students and to support their specific training, a LCMS Moodle environment were planned and realized, as a resource for achieving greater interaction with the participants and to support and expand the educational activities carried out in classroom.

1. Introduction and background (by Floriana Falcinelli)

The nowadays students are often defined as "digital natives" [1], as they avail themselves of integrated media in a multitasking perspective [2] and their approach to knowledge is based on research and discovery and centred on problem-solving and knowledge-sharing; in other words, it is net-structured, experiential, cooperative, active and self-organised [3]. The everyday use of new digital media influences the way of communicating, learning and actively and creatively constructing knowledge [4] and promotes the "participatory media culture" [5] or "hypersociality" [6].
In order to obtain a discovery-based learning, the teacher has to consider knowledge as a learning focus and the result of a cooperative work. Furthermore, he/she needs for suitable tools and methods allowing the learning assessment [7].

2. The first questionnaire administrated to students (by Chiara Laici)

To the aim of realising tools suitable for finding students' education needs, a questionnaire was set up in October 2009 in cooperation with teachers. Taking into account the number of students (n. 143), the administration easiness and the kind of data to be collected, a mainly quantitative tool (as a semi-structured questionnaire is) was chosen [8]. The questionnaire indeed included four close-ended questions (where the responder had more options) and one open-ended question.
Questionnaire structure.

- "Which technology tools do you use"? (computer, mobile telephone, Play-station, Minintendo, iPod, mp3, iPhone, wii, others).
- "Do you use Internet"? (Yes, No).
- "How do you use Internet"? (to get information, messenger, chat, e-mail, games ,Facebook ,forum, download music or video or imagines).
- "Which one of the following programs are you able to use"? (Paint, Word, Power-point, Excel, Photoshop).
- "Which tools would you use in the classroom"? (open-ended question).

As far as it concerns the first question ("Which technology tools do you use"?), data concerning computer (91%) and mobile telephone (76%) showed the wide diffusion of these tools, as reported by several recent researches on the matter [8]; games console (Nintendo: 45%; Play-station: 50%) and music decoders (mp3: 52%; iPod: 34%) were also widespread. Ten per cent only of students used iPhone.
A high rate of students used Internet (86%), mainly preferring software (68%), games (58%) and download software (50%). As far as it concerns communication devices, 40% used messenger, while 25% preferred chat (25%), e-mail (23%) and Facebook (23%). Three per cent only used forums.
As far as software, students asserted to be able to use Paint (80%) and Word (78%), while 37% also managed Power-point, 15% used Excel and 11% Photoshop.
Students would like to use computer (81%), whiteboard (37%), mobile telephone (22%), Play-station (14%), television (10%), iPod and wii (8%), mp3 (7%), Nintendo (6%) and digital tablet (5%) in the classroom.

3. Observation in the classrooms, focus groups with students, teachers'

opinion (by Floriana Falcinelli)

In order to know the work carried out the in classroom and the problems eventually arisen, it was settled to carry out an observation on a school-day and to organise students focus group (May 2010).
As far as it concerns the space organisation, in three schools tables were arranged in a traditional way (in rows), while in other three they were grouped. The traditional blackboard was generally situated close to the digital one. In the opposite side there was a lockable cabinet containing the other devices. In the three classrooms having portable computers, they were numbered and assigned to student. They autonomously used them and then replaced them into the cabinet after the lessons were finished. In most cases, the teacher's desk was collocated in a corner, besides the traditional blackboard and the whiteboard.
As far as the ICT use was concerned, a gap between teachers and students is to be remarked: students are used to navigate Internet and manage all electronic devices very easily (as far as both hardware and software). Sometimes, teachers helped them by stimulating, reassuring, praising and encouraging them or by putting questions, while students appeared enterprising or positively reacting to the teacher's stimulations. In other cases, teachers appeared more controlling and had some reservations about the students' autonomy; therefore they preferred using the whiteboard to work in a more traditional way.
Anyway, ICTs were used in all classrooms blended with other traditional teaching methods and tools (books, flashcards, etc.). In most cases, the whiteboard was managed by a special teacher, since a high number of teachers had many problems in using it; sometimes they asked the students' help.
Teachers always decided when and how ICT could be used in the classrooms, usually they had input a password in order to prevent students from irregularly using computers.

As far as the work organisation was concerned, in the three classes where portable computers were at the students' disposal, they were invited to work in pairs. An eventual disabled had the opportunity of working with the special teacher, even if he/she used the whiteboard to share his/her work with the schoolmates.

During the focus groups, students appeared enthusiast about whiteboard and the adoption of new technologies in the classroom; they the defined whiteboard as "wonderful, interesting, coloured, involving" and stated that it allowed "to do many things as easily learning, organising content in personal folders and entering the Net". The whiteboard could be used "to enter the Net and communicate with other teenagers", while personal computer and other portable tools were useful and made study more interesting, amusing and easy.

Information arisen from the focus groups were discussed in the teacher class meetings. Many teachers admitted that they overcome the former prejudices towards ICT and were willing to use them. Anyway, some teachers of Italian and Foreign Languages were still uncertain about it because they were afraid that learning by means of ICT could be superficial and temporary and could take students away from study, both in the classroom and at home. It has to be noted that students are very interested in ICT, but this behaviour not always gives rise to a real and productive participation.

4. The e-learning environment (by Chiara Laici)

At the end of the planning second year, schools wished to realise a deeper interaction with the public bodies involved in the Cl@ssi2.0 project and their students (and their families). To this aim, they intended to support learning in the classroom with an online environment allowing exchanges, interaction and content sharing.

Therefore, in October 2010 an e-learning environment (www.classionlineumbria.net) was started by means of LCMS Moodle. It is an open environment, coherent with the modern, polyvalent technologies, allowing an active, constructive and interactive relation between users and technologies [9].

In planning this environment, the following aims were taken into consideration:

- promoting opportunities of communication, discussion and reflection for teachers, students, families and other concerned subjects;
- share documents and content, even multimedia, produced by teachers, experts (university tutors) and local education superintendency members;
- promoting a continuous interaction among teachers, experts (university tutors) and local education superintendency members in order to realise the necessary scaffolding;
- promoting opportunities of communication, discussion and reflection on the training course;
- promoting an experimentation of blended learning in the classroom (in the classroom and online teaching/learning) to be carried out by students both individually and in team;
- enabling students to learn more content;
- enabling students to interact and share content;
- promoting the realization of learning and practice communities as innovative character of the teacher training.

The environment in hand included different kinds of courses. In particular, the following work areas were put at the users' disposal.

- "Area Comune" (Common Area). It includes a course entitled "Comunicazioni comuni" (Common communications) aiming at communicating, sharing content and supporting users from the technical point of view. The content concerning the teacher training course about the use of Moodle is also situated in this area.
- "Area Scuole" (Schools Area). It contains the courses for schools. A responsible for each school is appointed Course Creator.
- "Area Test" (Test Area). It contains test courses to be attended by the teachers.

The access to the course asks for a unique keyword shared by the classrooms in order to share their work (structure of the courses held in the classrooms, materials, etc.).

In September 2010 teachers attended a course in form of blended training (in the classroom and online) and adopting a ludic approach to technologies, that is by discovering them together with

students, in order to find their potentialities and create a new teaching culture based on shared and integrated technologies at their disposal [10].

In November 2010 some meetings destined to the student's parents were organised in the schools, in order to show them the environment and its characteristics, as well as the activities that could be carried out both in the classroom and at home.

Today (the project in hand is in progress) the environment has 202 registered users, that is: 151 students, 48 teachers, two tutors and a member of the local education superintendency.

Teachers involved in the six courses input 182 resources, that is: 84 links to multimedia web resources (websites and videos), 75 texts, presentations of Excel files, 12 videos and 11 images. Furthermore, 20 tasks, that are individual products realised by students, were input; 4 chats and a disciplinary forum (in addition to the six default forums included in the courses format) and 2 question areas ("quiz") were organised.

5. Conclusions and critical questions (by Floriana Falcinelli)

Today blending traditional methods with ICT represents a fundamental dimension of teaching, even referring to citizenship education. Schools have to know this kind of experience and help students organise, reflect and give sense to it, have to guide students towards a media ecology, intended as a virtuous blending of different multimedia and technology elements aiming at improving communication and interaction. Finally, schools have to promote an active and creative learning method availing itself of ICT, by considering the latter as a real and effective education resource [11].

In this project, the teachers' participation in implementing online courses and preparing resources and activities destined to students shows that they started to assume the role of facilitator in the teaching process. Furthermore, the continuous scaffolding carried out by tutors enables teachers to be in touch and discuss methods and schedules. It has to be stressed that firstly teachers were afraid of sharing courses, narrations and products with their colleagues, but the tutors' coaching activity helped them start working in a cooperative way.

The characteristics of these courses show that the teacher training needs for a long lapse of time to be realised as well as a continuous scaffolding and monitoring activity.

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