Abstract
This paper addresses the issue of school inclusion, focusing on the strong potential that Information and Communication Technologies (ICT) offer to all students, including those who, for a variety of reasons, cannot regularly attend classes and/or cannot access and use mainstream educational tools.
An explanation of the basic concepts underpinning the term “inclusion” is given, and a reflection is proposed about the new possibilities on offer in the so-called era of e-learning 2.0. The major changes demanded of those school systems that are willing to make widespread use of ICT tools are also brought to light.
The provocative question in the title remains open, but some new directions are outlined that could help to capitalise on the opportunities offered by new technologies and to support the full inclusion of all students in mainstream education systems.
Keywords: web 2.0, e-learning 2.0, school-inclusion, special needs.

1. Introduction
Nowadays the terms Web 2.0 and e-learning 2.0 are widely used. They both refer to the radical changes in the type and use of web technologies that have emerged in recent years. The notation 2.0 reflects the widespread perception that we are now facing a second-generation of e-tools and services, and new approaches to their use. According to Downes (2005), who first used the term “e-learning 2.0” the Web is, in fact, evolving, “shifting from being a medium, in which information is transmitted and consumed, into being a platform, in which content is created, shared, remixed, repurposed, and passed along.” E-learning is also evolving, together with the World Wide Web: the traditional model of e-learning based on “[………] a type of content, produced by publishers, organized and structured into courses, and consumed by students, is turned on its head. Insofar as there is content, it is used rather than read and is, in any case, more likely to be produced by students than courseware authors [………]. The e-learning application [………] represents one node in a web of content, connected to other nodes and content creation services used by other students.”

Leaving aside the interesting debate (Jennings, 2005) about the appropriateness of the notation 2.0, we acknowledge that the second generation of e-tools and services has a number of characteristics (in terms of structure/architecture but more importantly regarding functionalities) which can be considered significant for fostering learning and widening access to education. In e-learning 2.0 we are witnessing the adoption of new approaches to education and of an ever-wider range of new technologies, as well as new uses of technologies that emerged in e-learning 1.0. In this light, we tentatively pose the question as to whether the time is ripe to speak also of “e-inclusion 2.0”, or, in other terms, if a new era for inclusion is approaching.
In the following, we discuss the issue of whether the inclusion of all students in mainstream education systems can be regarded as a more reachable goal with the advent of the 2.0 era. In this perspective, first of all, we propose a definition of the concept of “school inclusion”, then we provide a panorama of the possibilities offered by e-learning 2.0 for guaranteeing identical educational opportunities and facilities to all students.
2. Trying to define school inclusion
According to the Charter of Fundamental Rights of the European Union (2000): “Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited”.

The basic concept of “non–discrimination” is directly linked to the idea of “Universal Access”, which is now considered by most developed countries as a fundamental goal to be met in the near future. “Universal Access” refers to almost all aspects of social life including education (Bocker et al, 2005) and, in this specific field, it entails the ability of all students to have “equal opportunity in education, regardless of their social class, ethnicity, background or physical disabilities” (Klironomos et al., 2006).

The risk of being marginalised and of being unable to access mainstream education systems mainly regards those students:

- with physical and/or sensorial impairments;
- with cognitive disabilities;
- with specific and non-specific learning difficulties;
- who have a cultural/linguistic heritage that is different from most of their classmates’ (e.g. immigrants);
- who are hard to reach because of specific personal, family or social situations (illness, social exclusion, etc…).

Students in the above categories have the right to expect the same standard of education as their schoolmates, and also to be considered and act as being an integral part of the learning community. Recognition of this right has given rise to the concept of “inclusion”, which has gradually substituted that of “integration”.

Integration focuses on students with special needs who require specific educational interventions and this idea of integration implies that the regular school stays the same but must take steps to absorb students who present a variety of problems/difficulties (Northway, 1997).

Inclusion is a much stronger concept: the basic idea is that all students should be enabled to participate in the life and work of mainstream educational institutions to the best of their abilities, whatever their needs may be. Inclusion, besides, implies a copernican revolution where students (each with their own characteristics and needs) are at the very heart of the educational process, becoming its main reference point.

As underlined in the Ofsted report (2001), “An educationally inclusive school is one in which the teaching and learning, achievements, attitudes and well-being of every young person matter. The most effective schools do not take educational inclusion for granted. They constantly monitor and evaluate the progress all pupils make.”

Inclusion, in this view, is a process of addressing and responding to the diversity of needs of all learners without distinction; it is a long-lasting process which requires time, effort and strong conviction by teachers and by all those involved in students’ education.

The building up of an inclusive classroom also requires that suitable, effective and barrier-free educational means should be employed.

From this perspective ICT is promising; there are grounds for maintaining that it helps most students overcome barriers to learning, increasing both achievement and self esteem (Ofsted, 2004). Indeed, educational research provides strong evidence that “ICT is both a medium and a powerful tool in supporting inclusive practice. It provides wide-ranging support for communication, assisting many learners to engage with learning, including those who are hard to reach, and helps to break down some of the barriers that lead to under-achievement and educational exclusion” (Becta, 2007).

The term ICT as used here covers both software tools and services (henceforth referred to as e-tools) as well as specific hardware components (henceforth e-devices).
Observations about the positive impact of ICT on inclusive education appear to be even more well-grounded if we think in terms of “e-learning 2.0”, which, because of its “user centred” philosophy, seems better suited to the idea of “inclusion”, where all students should be considered as being at the heart of the school system.

3. E-Learning 2.0: what opportunities for the inclusive classroom?

As already mentioned, the concept of e-learning 2.0 reflects emerging educational trends, namely the learner-centred approach, the emphasis on active learning, creativity, communication and participation and, finally, the focus on the new social dimension of learning.

This corresponds to a wide and open view of the educational process: it implies much more than just “adapting” to different learning styles, and mainly consists in giving great autonomy to the student, even entrusting them with complete control of the learning process (O’Neill & McMahon, 2005). In this framework, learning contents/material take on a myriad of different forms available from a multiplicity of sources, and the combination of more than one method for accessing educational contents is a key aspect.

Although the concept of e-learning 2.0 is, strictly speaking, independent of the possible means with which it is realised, it is often thought of in terms of a number of new e-tools such as blogs, wikis, podcasts, instant messaging, VOIP systems, RSS, social networks, online references and repositories, etc.

Such means may in principle foster:

- the personalization/individualization of educational activities/itineraries;
- the active participation of all students in school life and events;
- collaboration among all the actors in the educational process.

No doubt, one of the most interesting of the new possibilities on offer is that a high degree of “personalization” of educational activities is allowed, so that there is greater possibility for adaptation to the individual needs of a wide range of learners.

Using the above-mentioned means, students are allowed to learn and work at their own pace and may also have access to a wide variety of additional educational materials. Many researchers observe that new possibilities offered for actualizing individualised learning programmes and/or activities are particularly relevant for those students who cannot attend their class regularly (Becta, 2002).

We can probably go further and say that the “inclusion” of such students in classroom activities can be fostered to a greater extent, and not merely through personalisation.

ICT offers remote students a twofold opportunity for taking part in classroom activities effectively and directly: thanks to these technologies, students have the possibility to enter the classroom in a virtual way, in real time, and they also have the chance to bring and take out of the classroom learning material of any kind (text, videos, pictures, audio lessons, etc.) ready to be used whenever and whenever they need.

Podcasting and audio/video streaming facilities allow “distant” students to access and use, for educational purposes, both audio and video material coming from the classroom: they can benefit from the teacher’s direct explanations, they can follow discussions and classroom events of any kind. What’s more important, students can do this at any time, on demand: on the net in the case of streamed educational material, and on the move in the case of podcasts.

From the point of view of students with special needs, one of the most disruptive benefits coming from the introduction of distance learning services and tools in schools is that they can directly participate in mainstream classroom activities: they can be present in the classroom, attend lessons in a virtual way, participate actively, and make the others hear their “voice”. Videoconferencing, instant messaging and audio/video communication services can be considered powerful tools for these purposes. To date, the need for special purpose technologies has strongly reduced
the use of videoconferencing systems in schools and in education in general, even though research conducted in specific fields indicates that a wide range of social and educational benefits can accrue from the use of this technology.

With the advent of Web 2.0, there are ever-greater opportunities for engaging in online communication via technologies like videoconferencing. One of the new trends we are witnessing is that many students are dedicating an increasing amount of their leisure time to the use of online communication tools such as instant messaging, chat, VOIP tools with audio and video capabilities, etc. With the increased availability of such technologies in the Web 2.0 era, there is greater scope for educational application and thus for exploiting their potential for supporting distance participation in school activities. Using such tools, “distant” students can follow lessons, pose questions and interact from home (or elsewhere) with other class members, wherever they may happen to be.

In a sense, this is an inclusive use of technology in that the same tools can be used by all the students, irrespective of their particular needs, in order to take part in learning activities both inside and outside the classroom, synchronously or asynchronously, and to engage in collaborative activities.

As underlined before, students whose lifestyles/constraints make regular attendance at school problematic now have a number of different possibilities to communicate with each other, with their schoolmates, with their teachers, and with others; in these situations the systematic use of these tools enhances learning possibilities and may also increase overall school achievement (Condie & Munro, 2006).

There are many different internet communication services that can be used to exchange ideas, pose questions and receive answers and a number of specific tools are available for those purposes.

Asynchronous services such as email and discussion forums provide students with the possibility to exchange messages and network files, that is they have the possibility to exchange ideas and actual material such as texts, worksheets, tests etc. Synchronous services such as chat rooms and instant messaging environments add the possibility to do the same things in real time, allowing students to receive immediate feedback on work done and rapid responses to their questions and opinions.

Students may also join mailing lists, where they have the possibility to discuss different topics, to receive announcements, newsletters, or electronic publications. Weblogs, or blogs, which embody a specific kind of communication (unidirectional in principle but in practice open to external contributions), are also increasingly being used in education. Many personal and classroom blogs are being created for explicit educational purposes, and they have also been employed in blended education, where "conventional" instruction (in presence, offline, non-electronic) is combined with online working, tutoring or mentoring services (Oravec, 2003).

Communication is the basis for collaboration, and learning is no longer considered as a process that students should perform in isolation. The importance of cooperative/collaborative study is well known (Panitz, 2007) and the benefits of this approach to learning are reported in a variety of scientific papers drawing on innovative experimental research (Alderman, 2006). Computer Supported Collaborative Learning (CSCL) is universally considered a valuable field of investigation (Dillenbourg, 1999).

Coming back to the perspective of students with special needs, their undeniable right to be part of the classroom learning community also implies that they have the right to collaborate and cooperate with classmates. In terms of CSCL, there are a number of ICT services and tools that allow and foster cooperation among students; most services for instant messaging and audio-visual communication also provide specific environments where students can interact and produce texts or other material in a collaborative way.
The possibility to share a variety of different applications and materials is also provided by most synchronous interpersonal communication services; students are allowed to write documents collaboratively or to put together and analyze data from different sources. For example, in the Web 2.0 era, commonly used production tools such as word processors that were previously available almost exclusively as standalone applications are now moving online, with specific features designed to enhance and support collaboration, even in real time (e.g. tools such as Google Documents).

Recently, new frontiers for online cooperation have also been opened up by wikis, which permit collaborative production of online documents by multiple users, and the result can be read just like any web site. The real educational potential of wikis lies in the way they are created, in the fact that groups or single users (teachers and different groups of students, for instance) can work collaboratively on them using a standard web browser.

In this perspective, wikis are considered by most educationalists as ideal tools to support and increase collaborative work done by both students and teachers, even at distance (Augar, et al., 2004). Students can use a wiki to collaborate on a group report, gather data or share the results of their research, etc. During the wiki building process, it is also possible to keep track of the history of the document: each time one of the authors makes a change, this generates a new version of the document and the previous one is stored in a log. All the different versions of the document remain available for comparison, and if necessary previous modifications can be reversed.

In the e-learning 2.0 era, communication and collaboration can also be fostered though use of devices specifically designed to permit mobility, and whose adoption for educational purpose has led to the emergence of the term “mobile learning”, or “m-learning”. Using devices such as mobile phones, personal digital assistants and handheld computers, students can now carry out ICT-based learning activities in a whole variety of places, not just in settings where learning traditionally occurs, like the classroom, lab or home. As a result, there is a real possibility for the learning event to become genuinely “time and space independent” (Roschelle & Pea, 2002), with all the educational advantages this can bring, including widening the boundaries of the inclusive classroom and adapting to the essentially “mobile” nature of “learning” (Vavoula & Sharples, 2002). As an example, handheld computers can be used for allowing students to gather and elaborate data in the field during experiments. Furthermore, mobile devices can provide communication channels, to be used both during face-to-face sessions and at a distance. As underlined by Cobcroft (2006) m-technologies, “thanks to their ability to engage students in creative, collaborative, critical and communicative learning activities”, offer new solutions for information delivery and sharing. From this perspective, m-learning devices certainly provide the potential for increased inclusion both inside and outside the classroom; in addition, according to a number of specific studies, it also offers a number of significant benefits to foreign and remote learners, as well as those with cognitive, behavioral, social problems, with physical or mental difficulties, the gifted and the mature-aged (Rodríguez et al, 2001; Savill-Smith & Kent, 2003; Strom & Strom, 2002).

4. Embedding new e-tools in the inclusive classroom: changes and challenges

New times, new tools and new ways of learning require many changes in classroom management and in the type of activities to be carried out. The “inclusive classroom” that makes systematic use of e-tools and devices can be seen as something basically new, and great changes are required not only of the individual teacher, but
of the education system as a whole. The school should, in fact, guarantee flexible organization and should also support teachers, not only in terms of providing them with suitable equipment and infrastructure, but also with constant technical support. The "inclusive classroom" can no longer simply be regarded as the physical place where lessons take place; the integrated use of new tools enlarges the perspective and leads us to consider the classroom more as a group of people who interact for learning purposes. The actual physical classroom exists, but is not the only place where learners and teachers meet and interact. In this scenario, community links become stronger and are not limited to school time, interpersonal relations are fostered, students are encouraged to communicate and cooperate with each other, seeking help and advice if and when needed.

The term "open classroom" seems more in line with the idea of the "inclusive classroom" than the widely used term "virtual", as it instantiates the possible integration of the two educational environments (physical and virtual) without necessarily excluding learning activities carried out in the physical classroom. The open classroom poses a number of challenges, one of which is that educational materials need to be stored in digital form: this applies not only to audio and video material, but also to most textual material (tests, articles, book chapters, etc.) as well as graphics. This demands new skills of both teachers and students but is not the only or indeed main change involving the two main actors in the educational process: the overall role of teachers and students changes radically, as does their reciprocal relationships and classroom dynamics.

In the open and inclusive classroom teachers’ and students’ roles are deeply modified as they encounter new learning environments and new educational material. The requirements demanded of teachers regard:

- New views and methods for effectively incorporating new educational material and tools in mainstream activities;
- Capacity to select appropriate tools and resources in accordance with specific learning objectives and with the particular needs of learners, both as individuals and as a group, with special attention to questions of the accessibility of software and of hardware devices;
- New skills in the technological field (they need to be aware of the possibilities and of the actual functioning of the tools);
- Renewed attention to lesson planning, in accordance with clearly defined educational objectives;
- Willingness to assist learners while they are engaging with the use of technological tools (which is quite distinct from teaching the use of technology);
- Capacity to see themselves not only as teachers but also as facilitators of the educational process;
- Capacity to change the methods of evaluating students’ attainment / performances.
- Willingness to keep in touch with students outside school hours.

Teachers need to adapt to a changing technological society where managing technology may occupy a great deal of time and intellectual energy. However, the demands go deeper than this: changes call for re-examination of teaching methodology. The traditional techniques of class instruction and scheduling are brought into question, the type of activities to be done may change, multiple activities may occur simultaneously, changing the ways in which the teacher might/must facilitate learning, and also changing the ways in which learners tackle educational tasks. Basically, the teacher’s role in the open classroom shifts from the primary role of information giver to that of facilitator and guide; this role also incorporates mediation, modelling, and coaching, and requires a high degree of adaptivity to new learning/teaching schemes.
As a facilitator, the teacher is required to become personally engaged in public and private dialogue with students in order to assist them (face-to-face and online) throughout the whole learning process. S/he should also think of how to promote and orchestrate collaborative study and often needs to become a co-learner and co-investigator together with the students.

On the other hand, students’ new role envisages:

- Capacity/ability to use a number of technological tools or willingness to learn how to do so;
- Sense of personal responsibility and a concrete willingness to switch from passive to active learning;
- Ability to set themselves a reasonable pace for completing activities;
- Motivation to interact with the other actors in the educational process and socialize using e-tools;
- Capacity to see the teacher mainly as a guide, a facilitator who can help them to reach educational objectives.

All these changes are likely to permeate classroom procedures and influence behaviour and classroom dynamics in a permanent way. Both students and teachers are required to:

- Be conscious that technical problems may arise and that solutions can be found collaboratively, by sharing problems, previous experience, different technological competencies;
- Understand that interpersonal communication in online environments can be affected to some extent by different personal attitudes / styles (humour, mood, adaptively, etc.) that may not be immediately apparent;
- Feel that they are both a vital part of the overall learning community;
- Be aware of the educational relevance of cooperation;
- Consider learning as a process not limited to class hours.

So far this examination has focused on the changes and challenges involving the roles of those engaged in the learning process and the dynamics of the process itself. Another aspect which requires specific consideration is the choice and adoption of technology, which may have a strong if not decisive impact on the degree of inclusion attained, as well as on the effectiveness of the learning processes set in motion. Key issues in this regard include:

- Appropriateness of the technology in terms of the intended context of application and the proposed educational goals;
- Awareness of possible cognitive overload intrinsic in the use of technology itself;
- The actual added value that the chosen technology offers when compared with alternative means;
- Accessibility of the technology, i.e. availability to, and usability by, all members of the learning community.

Accessibility is a crucial question in this regard, as a class certainly cannot be considered inclusive if the tools and services that students are to use are not equally accessible to all. Students with disabilities may face significant difficulties both in accessing and in using e-learning tools and devices. In addition, the types of obstacles encountered may vary considerably depending on the type of impairment. If the teacher wants to adopt mobile technologies for inclusion purposes, for example, the full accessibility and high-quality interaction of devices, applications and services needs to be the subject of careful attention. Indeed, mobile learning raises a number of “objective” accessibility problems, many of which derive from the very compactness and portability of mobile devices. For example, people with limited manual dexterity may find it difficult to work on a PDA with a stylus. Visually impaired
people may have difficulty reading the small, low-resolution, low-luminosity screen, not to mention managing arrays of small buttons with low tactile quality.

6. Conclusion
A brief overview of the new possibilities offered to education by e-learning 2.0 applications and services has been proposed. We have sought to demonstrate that, thanks to e-learning 2.0 technologies, “all” students are offered a number of new opportunities that can have a positive impact on their learning: they can easily communicate with each other and with all the other actors in the educational process (teachers, schoolmates, mentors etc.); they can participate in lessons and classroom events at a distance, and they also have the chance to study, work and perform educational tasks not in isolation but in cooperation. Such new technologies also offer significant new possibilities for individualizing/personalizing learning activities according to the specific needs of each single student.

The reflections reported here go no further than confirming the hypothesis that new tools are certainly promising and that, in the near future they may have a strongly positive impact on the building of really “inclusive” classrooms. The central question of whether the myth of school inclusion of all students (including those with special needs) is likely to become a reality in the near future remains open. The educational effectiveness of any technological means mainly depends on the choices made by teachers: in order to take a significant step forwards, the use of e-tools needs to be carefully planned and structured, and conceptually well integrated in mainstream activities. There is evidence from research (Moseley et al, 1999) that in almost all formal educational contexts e-tools do not make the difference per se, simply by being used: rather, what is likely to produce effective and significant changes on the whole educational process is the pedagogical idea underpinning the learning activities to be enacted. And this is certainly true in the field of special education and inclusion. According to a recent Becta report in this area (2007), the provision of technology alone will never fully capitalise on the opportunity ICT offers to inclusion without the understanding and skill of teachers in planning its implementation: “there is a need for a clear understanding of the pedagogy of ICT and inclusive education by all those supporting children’s welfare and education”.

The process of inclusion, then, can be fostered by the use of new technological tools but it also requires changes and modifications in educational contents, approaches, structures and strategies.

References


