
Training young people in the use of digital media: the highs and lows of establishing the Information Technology and Internet Proficiency Certificate (B2i) in France

Jean-François Cerisier*, - Caroline Rizza***
Bruno Devauchelle**, **** - Aurélien Nguyen *******

** Équipe de recherche technologique en ingénierie des ressources médiatiques pour l'apprentissage - IRMA (ERT 49), Université de Poitiers
cerisier@univ-poitiers.fr*

*** Centre d'études sur les médias, les technologies et l'internationalisation – CEMTI (EA 3388), Université Paris 8*

**** Département Innovation pédagogique, TELECOM ParisTech (ENST)
rizza@telecom-paristech.fr*

***** Centre d'études pédagogiques pour l'expérimentation et le conseil de Lyon - CEPEC*

b.devauchelle@cepec.org

****** Département Ingénierie des médias pour l'éducation, Université de Poitiers
Aurelien.nguyen@univ-poitiers.fr*

ABSTRACT: ICT contributions to individual life long learning courses need a fair digital acculturation. Precisely, only School is able to support this kind of fair digital education. We propose to discuss this point of view through the analysis of the French training device X2I (B2i and C2i).

RÉSUMÉ : Les apports des technologies de l'information et de la communication aux parcours individuels de formation tout au long de la vie supposent une acculturation numérique que seule l'école peut contribuer à construire de façon équitable. Cet article discute le rôle de l'Ecole au moyen d'une analyse du dispositif français X2i (B2i et C2i).

KEYWORDS : digital culture, acculturation, internet generation, uses, competences, training device, certification, B2i, C2i

MOTS-CLÉS : culture numérique, acculturation, génération internet, usages, compétences, dispositif de formation, certification, B2i, C2i.

Let anyone learn to enjoy their right to education even though he has no training structure close to hand that suits his or her needs: that is the utopia of distance education. The internet is a kind of heterotopia in the sense proposed by Michel Foucault [1984], ie the internet makes this concrete in providing a space, the existence of which, though not physical, is nonetheless real. For all that, can we consider the problem to be resolved? The problem is in the process of being resolved, according to those who only consider connectivity to the internet. For them this is growing everywhere. And this, despite persistent disparities, is mainly due to sociographic factors. However, the problem remains unsolved for all those who consider that the availability of equipment and resources is insufficient. We must also have the knowledge and skills needed to acquire these mediated learning environments and networks, serving our personal projects [Cherry, 2001].

1. Framework of the research and organization of the article

The study outlined in this article is part of a broader research program covering the construction of the digital culture of young people and its role in the process of individual and collective development of the uses of information technology and modes of communication.

Within the thematic framework of this study, the authors chose to discuss here the issue of training learners in the use of ICT as a prerequisite for the efficient implementation of these technologies in all types of learning media environments. Some dismiss this matter on the grounds that digital culture grows naturally, without any formal training, at least with regard to the youngest age groups. The authors take the view that this is a delusion and set out to provide clear evidence through a more a more refined approach to the distribution of skills among young people. There are four stages in the analysis. The first is to identify the different functions that ICT exhibits or can exert at the heart of educational systems. This approach, inspired by systemic analysis, seeks to highlight the existence of subordinate relationships between these different functions. The approach thus makes the need for digital literacy among young people appear to be a prerequisite for all other ICT uses.

The second part discusses what is labelled here *the paradox of the Internet generation*, which calls into question the assumption of the widespread mastery of ICT by the younger generation. Of the several layers of skills which are highlighted, only the one relating to operational competences is actually mastered by the majority of young people.

The third part is devoted to a critical presentation of the French X2i system (Diplomas and Certificates of competences related to the use of ICT and concerning all levels of education from primary school to university). This presentation is designed with a historical perspective that places it clearly in the context of political

aims and educational issues, as well as the realities of its deployment on French territory.

The fourth and final part reports on the analysis of the implementation of the ICT certificate in all colleges of one Académie¹, that of the of Poitiers [there are 35 regional Académies in France, that of Poitiers being responsible for education in the Poitou-Charente region]. This quantitative study analyzing the situation on the ground in all its diversity allows the (B2i) system to be evaluated in terms of its ability to lead students towards mastering competences. Amongst other things, this will enable them to become autonomous learners in mediated learning environments, in a context of training throughout life. It also highlights the difficulties in deploying the B2i, while accepting that it is very innovative in its objectives (developing digital literacy in young people) and its modalities (certification procedures based official reference grids of expertise)

2. The three main functions of ICT in school

The educational and, a fortiori, academic uses of information and communications technology come together at the crossroads of logical systems which are often contradictory. These systems are economics, politics, education and law, as well as those of ethics and power. It is now established that ICT, in all its formal training aspects, is at the same time a context, an object (i.e. an object of teaching/learning) and a means.

First, it contributes to the societal context of the school. It becomes a means when resources are mobilized, as required for the effective implementation of a teaching scenario. It is an object of learning when it comes to building skills without which uses prescribed or anticipated cannot be implemented. It is notable that the way of apprehending these technologies as an object of teaching/learning has changed greatly. From an initial perspective that can be summed up in the teaching of technologies and techniques for themselves (teaching programming techniques, for example), the orientation has shifted essentially towards learning mainly aimed at the mastery of practical competences.

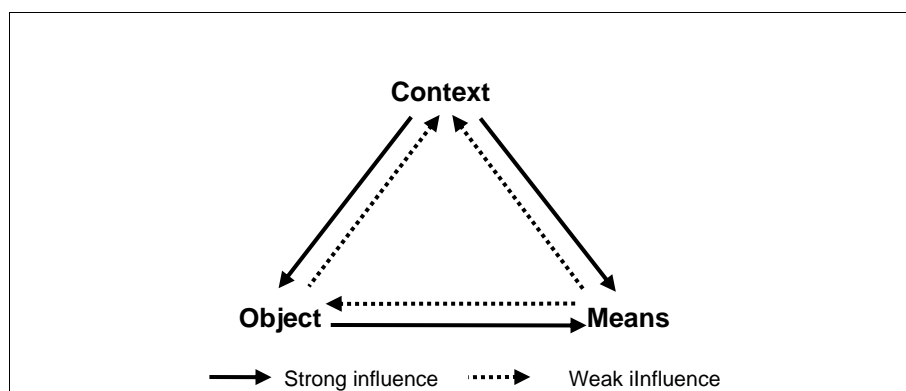
Furthermore, one could call them collateral, ie the learning activities have, in the first place, other objectives, but they prompt or harness skills relating to the use of technology. The technology is clearly a question of context and the truth of this

¹ Académie system

In France, academic councils called académies (English: academies) are responsible for supervising all aspects of education in a given region. It serves as a link between regional educational interests and the centralised governing body in Paris. It ensures the implementation of the official educational programs produced by the Ministry. The académie headquarters (termed rectorat) is usually located in the largest city in the concerned territory.

assertion has grown over time. In the early stages of the use of computers in schools (in the 1970's and 80's), the use of computer technology was limited to Hi-Tech industries and research. This imparted to these early educational uses an ethos of innovation and modernity. Current school practices seem trivial or even outdated as technology has permeated all of our individual and social practices. ICT is therefore more than ever an element of the social context at the root of the school, both because of what it reflects and because its mission is to prepare the citizens of tomorrow.

Each of these three dimensions is debatable, or at least open to discussion for stakeholders in the education system. Even if the massive presence of technology in society cannot be overlooked, it is perfectly possible to debate the legitimacy of its place in school and the role it should have. Prospective works (OECD scenarios², the operation "Futurs" of the 2002 Communications Summer School³ and short stories by students in educational technologies⁴), anticipate worlds where school organization is very "technologized", but also others where the academic sphere is fully insulated, thus allowing learning spaces devoid of any technology. Whatever the school chooses, the contextual value of it is not affected, but manifests a tendency somewhere between insulation and osmosis. In the same way, the legitimacy of teaching technologies (object) or the effectiveness of their pedagogical practices (means) are discussed. Traces of this discussion can be easily found in the brief history of educational technologies. While most of the research endeavours to discuss one of the three dimensions separately and independently of the other two, it seems essential to the argument of the authors to stress that these dimensions are linked by relations, if not of causality, at least of influence. There are a range of strong influences, accompanied by a set of more feeble influences.



² <http://www.rfi.fr/fichiers/mfi/education/293.asp>

³ <http://www.educnet.education.fr/chrgt/futurs-scenarios.pdf>

⁴ <http://ll.univ-poitiers.fr/dime/spip.php?article26>

Figure 1. *Relationships of influence: Context ↔ Object ↔ Means***2.1. Relationships of influence (Context ↔ Object) and (Context ↔ Means)**

The history of educational technology shows that the level of equipment in educational establishments is most often derived from all other sectors of society. This observation must be adjusted according to several variables, notably in the fields of culture, politics and economics. This explains, in particular, the speed of establishments in becoming equipped, as well as the rate of growth. If the equipment constitutes one of the conditions necessary for its use, it is not a sufficient one. Indeed, it continues to be indicated in many different contexts and countries that there is a gap between the level of equipment and its actual use. However, all studies are consistent in recognizing that there is a strong correlation between, on the one hand, the massive expansion of the presence and use of ICT in all sectors of activity and, on the other, its incorporation into education. The processes involved are complex, but at the risk of over-simplification, we can make the assumption that technology outside school has a potential for change which is putting pressure on the school system. This then adapts, thereby reflecting a principle of homeostasis.

In this sense, technology viewed as a context, indirectly exerts an influence (or even constraint) on the uses, via its more direct effect on school equipment. There is an inverse relationship of influence that describes how the incorporation of technology by schools is likely to contribute to the development of its use throughout society. We can refer to the school as a significant market, with equipment in French schools estimated at 9.9 computers to 1 pupil for college students (1 / 4.4 in high schools of general and technical education and 1 / 3.1 for vocational high schools) in the second semester of 2006 [MEN & MESR, 2007]. It is also important to underline that the use of acquired skills at school can be reinvested outside the school even though many studies show that practices and ICT skills of young people are in fact little linked to the academic sphere [Médiappro, 2006].

2.2 Relationships of influence (Object ↔ Means)

The manner of influence (Object ↔ Means) is the basic issue of this article. In order that technologies are mobilized in the service of learning activities (ICT as a means), it is essential that the learner has the intelligence and control (ICT as an object). The effectiveness of a system of learning involving media is thus widely dependent on the digital culture of those concerned and, in particular, of the learners. Thus, the success of any learning activity organized by a teacher and based on the use of digital media requires students who already have knowledge and competences, including those needed for the media. This raises the question of the responsibility of the school with respect to the acculturation of young people, both

in its role in civic education adapted to contemporary developments in our society, as well as in ensuring that the teaching practices are of a high standard. This applies to school and beyond, with a view to learning and training throughout life.

3. The paradox of the Internet generation

There is no shortage of literature from professional, scientific and institutional sources, relating to the attributes of pupils, including the very youngest. We hear of their great ICT competences that are lacking in their teachers. As a result, rather than being a product of their age, it is the fact that they were born into a society strongly permeated by ICT, that gives these “digital natives” [Prensky, 2001] the set of skills needed for effective ICT usage. In 1998, Don Tapscott stated that by modifying the main spheres of social life (education, corporate culture, patterns of consumption and the civic sphere), the Internet is influencing the development of a growing generation. "The information revolution is in the process of shaping a whole generation" [Tapscott, 1998, p. 2]. More specifically, he located the birth of this generation that he calls "the Internet generation" in the late 1990's. According to him, a double mediation is involved :

- on the one hand, it is shaped by the transformation of society caused by these "new" technologies.
- on the other hand, it is defined by its relationships with the media it knows how to appropriate.

This internet generation is thus presented as the first who grew up surrounded by the Internet and ICT. The very expression “Internet generation” codifies and combines the power of a demographic phenomenon with that of the analysis of these new media. Individuals of this Internet generation were socially constructed while, at the same time, a new interactive means of communication took its place in society at the social, economic, cultural and political levels. In addition, more than being a simple witness to these changes, the Internet generation is itself a vehicle for transformation, with an influence on social issues since:

- it is defined by its relationship with the media;
- it is different from previous generations, having grown up surrounded by these technologies and acquiring a specific character unconsciously.

The children who learn, play, communicate, work and create communities that differ from those of their parents through the use and appropriation of these new media are therefore bound to impose their culture of digital technology on the rest of society. It can be imagined that this will also apply to future generations.

However, the introduction of a new pedagogy, a new corporate culture, the emergence of new patterns of consumption and the possibility of improving the

civic sphere, are all challenges facing the whole of society. If only a part can cope, we risk a new form of fragmentation of knowledge [Rizza, 2006].

While revealing the existence of a certain digital youth culture, the survey conducted in France by Evelyne Bévort and Isabelle Breda, within the framework of the European Mediappro program⁵, arrives at conclusions containing moderating elements. Two points can be extracted from the findings to focus on:

"The relationship that French young people of 12 to 18 years of age have with the Internet and electronic media has changed greatly since 2000. Practical involvement has become massively widespread, its uses centering on two axes: frequenting the sites, mostly for school work, and communicating at a distance, with all the services available (cell phones, instant messaging and, to a lesser extent, e-mail). Young people have embraced these media in their daily lives, on a regular but moderate basis, as services that are used according to the priorities of the moment. Their relative ease in the use of electronic media has been built primarily by trial and error and personal exchanges with their friends. Television has allowed them to build a rather vague view on the potential risks linked to the use of the Internet (...)"

"However, despite their substantial practice and their interest in these media, they are less competent than they think and say. They do not always master the concepts and terms which would permit them to describe and explain their practices, nor develop their own views on these media. They now need to deepen their capacities, which are often superficial, their knowledge usually being very blurred. Most of them perceive the electronic media as technology on the move and rapidly embrace new developments (...). They ask for help to make better use of electronic media, to develop skills, to better understand the mechanisms that are at work in the production of online information as in distance communication and to acquire the ability to think critically"[Bévort & Breda , 2006, pp. 14-15].

Despite the existence of a digital youth culture with its pronounced characteristics, not all those of this generation and, more generally, not all citizens in today's society, have the same access to the resources and information. People do not have the same capabilities, the same knowledge and know-how to deal with – even participate in creating - this information.

While the existence of the “the communicating society” is no longer in doubt, it is helpful to introduce the notion of the “digital divide” as a counterpoint to that of the “digital culture”. Three dimensions or levels of the digital divide are presented as follows:

⁵ This study concerns young people of 12-18, ie the generation born between the years 1988-1994. It does not, therefore, refer exactly to the generation studied by Don Tapscott (1998) . However, it underlined, as we shall see, the issues to be focused on for this later generation.

- occurring when there is limited access to information, a consequence of limited access to ICTs and to the Internet; - occurring when knowledge and know-how is insufficient to control and use these technologies;
- occurring when there is an inability to access the new services and the civic sphere available to the individual on the Internet (and therefore the inability to benefit from it).

There arises here the risk of a two-tier society based on two classes of individuals. The digital divide is seen as constituting an additional stratification superimposed on that which already exists in the industrial society. It combines a mixture of unequal access (economic capital) and disparities in terms of knowledge and know-how (social capital and cultural capital). A communicating society is therefore emerging where there is a digital divide between the two sides of society: on the one hand the information-rich and, on the other, the information-poor [Rizza, 2006]. The “info-rich” have access to ICTs, know how to use them and have an effect on society. These are the Chosen Ones of the digital culture. The info-poor have no access to ICT, find little or no use for it, and find it difficult to exert an influence on society and adapt to it. They become excluded from the digital culture. The paradox of the Internet generation therefore rests in its inability to reduce the digital divide within itself. Thus there are people who are supposed to belong to the Internet generation paradoxically excluded from the digital culture and, at the same time, having to face the new technological developments, Web 2.0.

The role of the school is clear, even though it is now well-established that it has no more of a monopoly on education in this area than anyone else. That role is to enable young people to build the competences that even intensive use of the media is not enough, on its own, to establish. Using the term “competence” here presupposes that it is defined with caution. In fact, it is polysemic, as demonstrated by Ropé and Tanguy [1994] in their early papers on its social traditions, especially in the field of education. In what follows, we will adopt the definition given by Philippe Perrenoud [1995] for whom a competence is “*know-how at a high-level, requiring the integration of multiple cognitive resources in dealing with complex situations.*” Not all competences are set at the same level and, with regard to competences related to the use of ICT, these can be divided into three main levels. These range from those more specific to technologies to those that are the least specific: the instrumental competence (operational level); transversal competences, primarily related to the mastery of languages (functional level); meta-competences which organize the planning and implementation of a performance in its final, complex form (strategic level). It is worth noting that while the instrumental abilities are inseparable from the technologies themselves, the competences at the highest level have the characteristic of transversality, which makes them usable in contexts which might or might not call for this technology.

This approach, schematic as it is, allows us to contrast the difficulties faced, on the one hand, by some young people whose competence, and even operational

virtuosity, mask the lack of competences at the highest level and, on the other hand, those teachers who sometimes lack instrumental competence . It illustrates the paradox of the Internet generation from another angle and calls into question the idea that pupils can be proficient in the use of ICT where teachers might be incapable. In fact, students and teachers do not have the same competences and do not encounter the same difficulties, suggesting that the paths of appropriating a competence will not be the same for everybody.

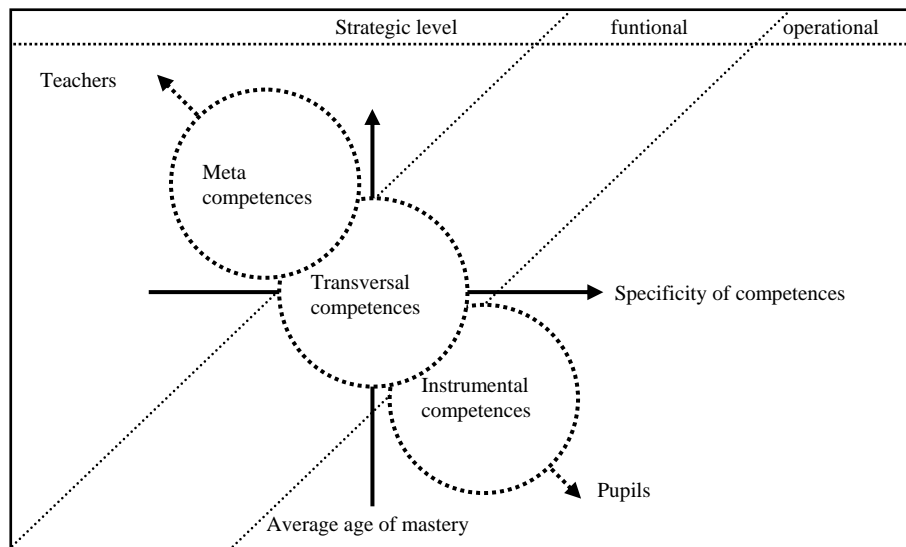


Figure 2. *Distribution of competences relating to ICT use according to age and type.*

4. The X2i system as the response of educational establishments

After more than twenty years of shilly-shallying, the Ministry of Education has opted for a system of certification of competencies related to the use of ICT: theX2i. This comes in various forms depending on the different levels of education. The IT and Internet proficiency certificate(B2i) has three levels (primary school; lower and higher level secondary schools⁶) and the Certificate of informatics and Internet (C2i) has two levels (bachelor and master).

⁶French secondary education

Secondary schooling is divided into two successive stages, known as cycles. From 11 to 15 years, almost all children now attend a collège, taking them from form 6

4.1 The creation of the X2i qualification in France

The creation of the X2i systems, officially dating from November 2000, is part of a strong movement starting in 1992 and reaching maturity with the development of the Internet in society as a whole. It is the *Programme d'Action Gouvernemental pour une Société de l'Information*⁷ (PAGSI) of 1997 which prompted the drive that would lead to the widespread use of systems for certifying competences in mastering the uses of information technology and the Internet. Aware of the global competition facing French society in relation to the development of the Internet, the government embarked on a comprehensive policy in which teaching and training had an important place. The acceleration of the process of creation of such systems in France is due to the strong development of the *European Computer Driving Licence*⁸ (ECDL Foundation) since 1997. This certification proposed by a European association arose from a consortium of companies offering from this point of time to provide training and evaluation based on a set of seven manipulative skills. The French government refused to endorse the development of this system, viewing it as unsuitable for two reasons:

- the exclusivity of the French diploma awarding system, reserved for those establishments authorised by the minister in charge;
- a disagreement on two points with the philosophy of the ECDL foundation: lack of a civic and social dimension in the skills listed and the limiting of the competences to technical ones, rather than focusing on contextualized usage, as preferred by the French government.

Reflection on how to position ICT in education and training has taken on a new dimension since the decision-makers have refused to create a specific discipline. By offering, as a first step, ITC in the high schools in 1992 and then proposing an "upgrade" on entrance to high school in 1999, the Ministry of Education had put in place a framework of reference. The arrival of the first B2i text in November 2000 received special ministerial attention, partly related to the government reshuffle. The French habit of wondering whether such a project would endure has been encouraged since the founding of the system by the fact that it was published in the form of a simple memo to schools. Also, the suddenness of its appearance on the French school landscape suggested it to be more of a contingent option than a structural decision. The first scheme proposed concerned primary schools and

(sixième) to form 3 (troisième). Since 1975 there has been a single mixed-ability collège for all pupils regardless of their level of achievement. After form 3, they move onto a general, technical or vocational lycée. (from 16 to 18). These prepare pupils for the corresponding baccalauréat examinations, which they usually take at the age of 18.

⁷ Source : archives du ministère de l'Éducation nationale, <http://www.education.gouv.fr/realisations/communication/samra.htm>

⁸ Source : fondation ECDL, <http://www.pcie.tm.fr/>, <http://www.ecdl.com/publisher/index.jsp>

colleges. But as early as 2002 it was extended in several directions. Working groups set up projects for high school, higher education and further/continuing education. In addition, the system has been awarded a National Institute of Intellectual Property trademark to protect the name and possible uses of the B2i system (as well as the C2i).

B2i École (Primary school)	Academic IT and Internet Proficiency Certificate Created and implemented in 2000, revised in 2006 Being part of the common base of knowledge and competences
B2i Collège (Secondary school, 11-15)	Academic IT and Internet Proficiency Certificate Created in and set up 2000, revised in 2006 Being part of the common base of knowledge and competences Mandatory for college pupils ⁹ from June 2008
B2i Lycée (Secondary school, 16-18)	Academic IT and Internet Proficiency Certificate Tested from 2003 to 2006; published and put in place in 2006
C2i niveau 1 Licence (Bachelor's)	Certificate of IT and the Internet Higher education Created in 2002, tested in 2003 and put in place in 2005
C2i niveau 2 Master (Master's)	Certificate of IT and the Internet Higher Education
Teaching profession	Tested from Dec. 2005 and put in place from 2006
Health professions	Tested from Dec. 2005 Put in place from 2007
Law	Tested from Sept. 2006 Put in place from 2007
Engineering	Tested from Jan. 2008

Table 1. *X2i systems in French primary, secondary and higher education.*

Shortly after the creation of B2i, other systems appeared with similar aims, some created by other government ministries (Employment, Civil Service + [Service publique] and the Prime Minister's own *Délégation aux Usages Internet*).

⁹The « Brevet des collèges It is not required in order to enter high school (lycée). The exam certifying the command of the basic skills (at the age of 14/15 years old); named the «Brevet des Collèges» is assumed to guarantee abilities to enter high school and then to follow post-graduate studies. The Brevet is presented as a benchmark for the evaluation of commanding basic skills.

NSI Certificat pour naviguer sur internet	Certificate for beginners only in navigating the Internet Created in 2001
B2i GRETA	Create in 2001, aimed at French adults in further education Tested in the light of transforming it into the Adult B2i (CIRCULAIRE N°2007-177 DU 3-12-2007)
PIM Passeport pour l'Internet et le Multimédia	Attestation of basic competences in public establishments (libraries, town hall, etc) <i>Created in 2002</i>
DEFI	Start of the Evaluation of Civil Servants of the Internet, created in 2002 for <i>fonctionnaires</i>

Table 2. *Other systems of certification in ICT competences*

Together, these four systems, apart from B2i GRETA (adult) and DEFI, are aimed at pupils and students, or at the general public. The target is still the young, but outside the academic sphere, and particularly in “digital public spaces”. It can therefore be noted that since 2000 a series of coordinated systems have been put in place. These devices have certain characteristics in common, for example official grids of reference with respect to the competences required, as well as some differences, especially with respect to instrumental abilities and usage skills¹⁰..

It should be remembered that, on the one hand, the X2i systems are all presented in the form of a list of competences collected in various domains and that, secondly, they must be validated to ensure that the certification is issued. The domains of expertise are common to the three B2i academic systems. In contrast, for the university C2i, the academic domains are specific to the education level (C2i level 1: Bachelor) and fields (C2i level 2: Master). The speciality of the X2i systems is that they must be validated in a variety of contexts of use. The concern of the designers of B2i was to avoid creating a system where the competences developed would be so context-dependent that they would no longer be transferable.

4.2 The deployment of the X2i systems

The emergence of the X2i systems corresponds in time with what has been called the bursting of the Internet bubble. After the excitement generated by a development rich with the promises made by political leaders (for example, PM Lionel Jospin’s announcements made at the Communications Summer School

¹⁰ In 2005 a status report, updated here, had already been published at the request of CISI: ENESAD-CNERTA; Delaye, Claire. Etat des lieux des certifications informatiques et Internet soutenues par l’Etat. June 2005, PDF, 49 p

1997¹¹), promises relayed by the mass media, the financial disillusionment which followed could have resulted in the refusal of the education system to adopt these new systems. However, dating from 2000, the drive to acquire equipment, as well as connections to the Internet, have increased more than ever. A large proportion of French households, especially those with children, were becoming equipped¹². At the same time, schools also significantly developed their facilities.

The maintenance and development of X2i systems was reinforced at a political level during this period, in spite of the big political change following the 2002 elections. Since then, this support has not been refused and continues today to be referred to in all official speeches relating to this field.

However, the establishments themselves are setting up the systems much more slowly than might have been anticipated. The figures put forward by the successive ministries have never revealed a genuine deployment of the B2i in primary schools and colleges in particular. In June 2006 the Department published a report revealing that only 14% of college pupils had validated their B2i certificate at the end of that school year. In his speech in November 2007, the Minister of Education said he envisaged that, by 2010, all primary school pupils will have obtained their B2i certificate¹³.

For high school, the experiments have resulted in few publications. The introduction of the system, although suggested to be going well in reports, has not really been effective in most schools at the end of 2007. They expect to have more information before establishing this still poorly-known system at this level. However, gradual pressure is coming from Higher Education establishments. This has led high schools with post-baccalaureate sections to conduct a comprehensive reappraisal of the X2i qualification. This is a consequence of the C2i qualification becoming an increasingly significant reality in Higher Education.

As early as 2002 the decision was made in Higher Education to insert the C2i certification into Bachelor's courses. While not currently strictly mandatory, the majority of academic institutions offer this to their students. In addition to this qualification, most of these establishments have set up training systems that generally involve specialized teaching. Students wishing to validate the C2i can do so as an option.

For C2i Level 2, aimed at the Master level students, only C2i teacher training is currently fully deployed. Indeed the C2i Level 2 is now mandatory for all teachers entering the profession. Only teachers training colleges, *Instituts universitaires de formations des maîtres (IUFM)*, possess the capacity to validate the competences of

¹¹ <http://www.admiroutes.asso.fr/action/theme/politic/lionel.htm> (document consulted 15 December, 2007)

¹² Source : Médiamétrie et enquête annuelle GFK/SVM

¹³ <http://www.educnet.education.fr/textes/discours/2007.htm>

students and they are required to include this ICT validation in the overall professional certification.

4.3 Changing official grids of reference for the competences

The establishment of X2i systems has generally been carried out in several stages, starting from the initial testing and ending with the implementation of the final official version. Only B2i has not experienced this type of development. The early publication of the first text led officials to think about the changes needed. That is why the first official grid published in November 2000 was succeeded in July 2006 by a new one, the latter being more accessible to users and more responsive to developments in the intervening time.

It was introduced according to the model chosen for the common base of knowledge and competences, *le Socle Commun de Connaissances et de Compétences*, in which it is integrated¹⁴. The aim was consistency for all three levels of formal education (the domains are identical).

These developments have led to significant changes and these changes reflect the choice made to adapt to the changing situation. This included:

- deleting explicit references to specific tools or to those which were too context-specific (the reference to a single word processor for publishing was abandoned and the reference to messaging software added);
- deleting some content that was deemed unnecessary or as having evolved into everyday practices for the levels considered (reference to 1 and 0 binary coding, use of Boolean operators for information retrieval);
- the appearance of what had been little-used concepts in the first version (for example, workspace, simulation tools)

The nature of the observed changes is multiple. It should be especially noted that the difficulty of this type of official grid of reference is its durability. On the one hand, the technologies and practices are changing very quickly. On the other hand, the competences of young people are changing rapidly. Daily contact with the technology, especially outside school requires the school system to think about the necessary adjustments. The risk of becoming academic in the domain of ICT is that it is not able to take account of essential changes, such as:

- obsolescence of tools;
- obsolescence of certain practices;
- changing of the apriori assumptions of pupils.

¹⁴ <http://www.education.gouv.fr/cid2770/le-socle-commun-de-connaissances-et-de-competences.html> (consulted 16 January, 2008)

While wanting to take into account these risks, the authors of this new text have not escaped criticism. This illustrates the difficulty encountered by the education system in identifying the sustainable skills to be developed in a context of shifting usage.

4.4 A framework that is increasingly coercive

Looking beyond the administrative deployment, we should note two converging phenomena: some resistance and an increasingly explicit obligation.

It must be recognized that the development of X2i qualifications has not been done quickly in spite of the official impetus it has received. From the start of B2i in 2000, the General Inspectorate of Education showed its surprise at the resistance it encountered in trying to implement this scheme. In addition to the need for intermediary inspection bodies to accompany the deployment, it spoke of the importance of the B2i having credibility by being associated with traditional evaluation: the college certificates and the baccalaureate. This will be accomplished in 2005 with the revision of *la loi d'orientation sur l'Ecole* (the law relating to the school system) of 1989, leading to the creation of le *socle commun de connaissances et de compétences*, the common base or core of knowledge and competences. Indeed, the B2i is one component (the fourth) of this core.

Moreover, the B2i would become, from June, 2008 required if the college pupil is to obtain the college certificate (as for the A2 level of competence in languages). Likewise for the C2i, especially level 2, which is now mandatory for new teachers. It will be one of the ten competences that constitute the basic requirement of the teaching profession.

Faced with this strengthening of legal obligations, which one can anticipate will only be reinforced, there are many difficulties associated with the system itself. Indeed, the analyses carried out in several pieces of research on change and innovation in education [Huberman, 1973; Cros, 2004; Alter, 2000] have shown the importance of constructing clear representations of the systems to enable them to be implemented. But B2i diverges widely from traditional representations of education: It is an evaluation that does not correspond to any specific teaching. Moreover, at the time of appearing, its formulation in terms of skills is still very poorly understood by most teachers. Finally, the question of class control relies primarily on the content taught and only then on the technology used to teach. But information technology and communication pose many problems (technical difficulty, malfunctions ..) for non-specialist teachers. This reinforces a certain wait-and-see attitude in the face of teaching B2i.

To these technical difficulties is added another difficulty linked to the switch towards the logic of competences and official reference grids that are gradually replacing the approach to content and curriculum (which began in the early 1980's in vocational teaching). The B2i, because it is based on this model, often arouses a non-comprehending reaction. Two types of incomprehension can be distinguished:

that relating to the method and that relating to the way it is expressed. The language used in describing the competences puts off many teachers, who see it as a radical change in their pedagogy and, above all, a breach of their educational freedom enshrined in the law. In addition, the competency-based approach prompts questions on the quality of the evaluation and its reliability. The lack of marks has given rise to many issues prompting the Ministry in September 2005 to authorize the issuing of the B2i if 80% of items on the official grid had been covered (as long as they represented all the domains).

While in primary school, this logic has gradually been put into place since 1995 (record books of the evaluation, overhaul of the programs), the colleges have not been equally prepared. Therefore, it is at this level in the education system that the most serious difficulties have arisen.

4.5 Track record 7 years after setting up

In late 2007, the X2i systems have not yet fully taken their place in the arena of youth training. Many pupils are only able to hear talk of the system. Its establishment from one region to another has been very uneven, both in school and university education.

The challenge for the X2i qualification is professional recognition of the skills involved. Steps in this direction are underway (see SDTICE 2007) but have not yet been accomplished. The sustainability of X2i is almost assured, but, by contrast, the procedures for gaining access to the qualification are still in question, as much in the teaching community (for example, see the discussion forum, *pagestec*¹⁵, for teachers of technology) as for the community of specialists, as indicated by the nature of the articles published recently by *L'association Enseignement Public Informatique*¹⁶..

5. The state of college pupils' ICT competences

Let us remember that in France, colleges are designed to accommodate all pupils at the end of primary school (age 11 on average). They cover the next four years - from 6th (11 years) to 3rd (15, on average) and offer structured teaching in disciplines whose programs are defined nationally¹⁷. French education currently has about three million pupils in more than seven thousand public and private colleges¹⁸..

¹⁵ www.pagestec.org

¹⁶ <http://www.epi.asso.fr/>

¹⁷ For more information, see the website of the Ministry of Education Nationale at the URL <http://www.education.gouv.fr/cid224/les-colleges-et-les-lycees.html> (consulted 15 December 2007)

¹⁸ These data are extracted from "L'état de l'Ecole 2007", a publication of the Direction de l'évaluation, on the prospects and performance of Education Nationale (the Ministry),

Regarding the use of ICT, college years overlap with the period of adolescence where digital media play an important and totally new role in the socialization of young people [Boyd, 2007]. It is also during this period that most young people experience the cognitive conditions, as well as economic and social consequences that will enable them to engage in personal and definitive uses of ICTs. Therefore, the authors opted for a study of the competences tested by the B2i system in colleges.

This study focuses on a sample of pupils in 127 of the 160 public colleges administered by the Académie de Poitiers¹⁹. It excluded pupils enrolled in certain specialized sectors (CPA, CLIPA, SEGPA)²⁰, as well as data that were unusable due to the implementation of ambiguous nomenclatures in relation to the classes referred to. Although it involves about 60,000 students, it cannot be pretended that this sample is representative of the whole population (all French college pupils). This would have required a sample selected on the basis of quotas. However, the breadth and diversity of the sample are guaranteed by the nearly-full coverage of a region divided between the urban and the rural. The sample base was broad enough to allow a serious analysis of the system. Data on pupils' competences were collected through the centralized database implemented by the Office of the Rector and based on the application of the GIBII.system²¹. Only validated skills in colleges are considered in this study.

Access to such data has been made possible through an agreement between the University of Poitiers and the *Académie de Poitiers*, on the use of all GIBII data (primary and secondary schools) for research.

For this article, the analysis of the data was guided by two main factors. The first deals with the competences actually validated by the B2i system for this population. The second deals with the involvement of teachers in the implementation of the system, according to their teaching disciplines.

accessible at the URL <http://media.education.gouv.fr/file/26/6/6266.pdf> (consulted December 15, 2007)

¹⁹ Data obtained from the website of l'Académie de Poitiers, accessible at the URL http://www.ac-poitiers.fr/81278291/0/fiche___article/&RH=1181655851880 (consulté le 15 décembre 2007)

²⁰ Classes Préparatoires à l'Apprentissage (CPA), CLasses d'Initiation Préprofessionnelle en Alternance (CLIPA) et Section d'Enseignement Général et Professionnel Adapté (SEGPA)

²¹ GIBII, système de Gestion Informatique du Brevet Informatique et Internet (computer management of X2i) was designed and developed by the Office of the Rector of Bordeaux. It allows teachers to key in validated skills on a devolved basis and is used in a large number of academies.

It should be remembered, to make sense of the results, that the college B2i tests 29 competences distributed in 5 domains, according to the official reference grids below.

Domain 1: Using your workspace in a network environment
C.1.1 : I know how to login to and log off from a network or website.
C.1.2 : I know how to access software and documents available from my workspace
C. 1.3 : I know how to organize my storage space.
C. 1.4 : I know how to read the properties of a file: name, format, size, date of creation and most recent modification.
C.1.5 : I know how to set up the printing parameters (preview, quantity of documents, parts to be printed...).
C.1.6 : I know how to make a choice other than the default (where to save a document, format,... which printer to use).

Domain 2: Being an informed user with respect to the rules and customs of information technology and the internet
C.2.1 : I am aware of the rights and duties specified in the charter of ICT use, as well as the procedure for alerting my institution.
C.2.2 : I protect my privacy by not giving information on the Internet concerning myself, except with the agreement of the adult responsible for me.
C.2.3: When I use or transmit documents, I verify that I have the right to do so.
C.2.4 : I am able to adopt a critical attitude to the results of processing (calculations, graphical representation, use of spelling and grammar checks ...).
C.2.5 : I take precautions against associated dangers (viruses, spam.....).
C.2.6 : I make sure my data are secure (using a password, management, logging off correctly, saving files).
C.2.7 : I use my IT skills to help with collective projects.

Domain 3: Creating a digital document
C.3.1 : I know how to make changes in formatting fonts and paragraphs, and can accomplish automatic page-numbering.
C.3.2 : I know how to search for an item in a document and replace it.
C.3.3 : I know how to combine in a single document several elements (text, image, picture, sound, graphics, video...).
C.3.4 : I know how to create and modify a spreadsheet, and how to insert a formula.
C.3.5 : I know how to make graphs of different given types.
C.3.6 : I know how to use simulation (or modeling) tools, being aware of their limitations.
C.3.7 : I know how to deal with image and sound files, using appropriate software to change basic elements.

<p>Domain 4: Looking for and selecting relevant information in response to a need or request, taking into account the wealth and resources of the Internet.</p>
<p>C.4.1: I know how to look for document references using the library software present in the resources center.</p> <p>C.4.2 : I know how to use the main functions of a web browser (settings, favorites management, management of displays and printing).</p> <p>C.4.3 : I know how to use the main functions of a search tool on the web (search engine, directory ...).</p> <p>C.4.4 : I know how to access the elements enabling me to be aware of the source of information (author, date, source...).</p> <p>C.4.5 : I know how to select results in a search (and provide arguments to justify my choice).</p>
<p>Domain 5: Communicating, exchanging and publishing information with IT.</p>
<p>C.5.1 When I send or publish information, I think about the potential readers in relation to the IT tool I am using.</p> <p>C.5.2 : I know how to open and save an attachment to a message or publication.</p> <p>C.5.3 :I know how to send or publish a message with an attached file.</p> <p>C.5.4 : I know how to use a contact list/address book or a directory to select a recipient.</p>

Table 3. *College B2i official reference grid of IT and Internet competences*²²

²² According to the table annexed to the ministerial circular published in the Bulletin Officiel de l'Éducation nationale n°. 42 of 16 November 2006 (document consulted on December 15, 2007 at the URL ftp://trf.education.gouv.fr/pub/edutel/bo/2006/42/MENE0602673C_annexes.pdf)

5.1 Distribution of competences in relation to domains and classes

	D1	D2	D3	D4	D5	Total
3 ^e	25364	12510	12175	7432	7417 ♀	64898
4 ^e	16456	6626	7875	3447	2192 ♂	36596
5 ^e	10503 ♀	3333	1915 ♂	2432	1064	19247
6 ^e	1810	911	730	579	331	4361
Total	54133	23380	22695	13890	11004	125102

Dependence is very significant. Chi2 = 3107.95, degrees of freedom = 12, p < .01
 The sign ♀ marks the boxes for which the actual number is much higher than the theoretically predicted value and the sign ♂ marks those where it is much lower.

Table 4. Distribution of the competences of college pupils in relation to the different domains

The figures shown in this table represent competences validated. The total of 125102 corresponds to an average of 2 competences validated (out of 29) per pupil, or 985 per school. Insofar as competence certification concerns the whole college cycle, it is more appropriate to consider the skill level of students of the third level (*troisième*: final year of college), knowing that the data were collected in early December 2007 and there is still a semester for students to develop their skills. For these students in the final year, the average number of competences validated was about 4.3 per student.

These data are interpreted in the light of the analysis of the system presented above. They confirm that the implementation of the system is far from complete, even though data from one education region (Académie de Poitiers) showed a marked increase over the past two years. This progress can be linked to an accompanying drive to deploy the system, initiated by the section of academic services dedicated to ICT. In addition, the observed distribution of validated competences in 127 establishments shows a wide spread. This points to the variable commitment of the teams of teaching staff in the process. It is thus clear that the success of the B2i in relation to its goal is strongly correlated with its incorporation into a real project, both at the regional level and at that of the academic establishments themselves.

Let us note here that 75% of colleges organize their activities according to a school project (*un projet d'établissement*), which includes a sector specifically related to ICT²³. This underlines once again the difficulty of implementing the B2i. From on-the-ground observations and regular meetings with teachers involved in the implementation of the B2i it is seen that that this reluctance to engage shown by teachers is largely attributable to the choice of a system opposed to two basic aspects, rooted in the professionalism of teachers and, more generally, in the views of all the stakeholders in the school system. The first element is the replacement, at

²³ Source DEPPP, <http://media.education.gouv.fr/file/21/3/6213.pdf> (consulted 15 December 2007)

least partially, of an older, curriculum and program-based logic by a logic based on a framework of competence criteria. The second relates to the abandonment, albeit to a limited extent, of a way of teaching these competences that enables them to be effectively evaluated and certified.

There are large differences in the distributions in relation to the different domains. It is useful to weight these differences due to the uneven numbers of competences associated with the different domains (D1: 6; D2: 7; D3: 7; D4: 5; D5: 4). This procedure yielded the following weighted distribution.

	D1 (6)	D2 (7)	D3 (7)	D4 (5)	D5 (4)
3 ^e	4227	1787	1739	1486	1854 ♀
4 ^e	2742	946	1125	689	548 ♂
5 ^e	1750 ♀	476	273 ♂	486	266
6 ^e	301	130	104	96	82

Dependence is very significant. Chi2 = 581.44, degrees of freedom = 12, p < .01
 The sign ♀ marks the boxes for which the actual number is much higher than the theoretically predicted value and the sign ♂ marks those where it is much lower.

Table 5. *Distribution of competences weighted according to domains*

Such weighting, even if it reduces the differences between the values for each domain, does not change the order. Thus completed, the data lend themselves to several comments on the implementation of the B2i system.

1) More than half of competences are validated in the *troisième* class in the colleges (64898/125102) which shows an organization very focused on this fourth and final year of college. Two explanatory hypotheses contribute in varying degrees to explaining this observation. On the one hand, it might be viewed that a natural development of competences occurs which depends on the level and age of pupils. If it were to be verified, it is an explanation which would allot only a limited role to the aspect of evaluation and certification in the B2i. It might be supposed that, if the B2i was based on a structured educational program leading to the development of competences in the use of ICT, chiefly through experience acquired through the whole ensemble of activities, then there would be a more even distribution of validated competences over the cycle.

On the other hand, one might suspect an effect linked to the sole constraint of time, knowing that evaluation takes place at the end of *troisième*. Given the low deployment of the system, it is to be expected that a massive rise in validations in this final year would be observed. This effect is automatically reinforced by the gearing up of the instruction relating to the system.

2) There was a significant over-representation of competences in Domain 1. Again, two hypotheses can help to explain this. First, Domain 1 ("Using your workspace in a network environment") is mobilized regardless of the proposed uses. It is, to an extent, consubstantial with all school uses of ICT. No wonder, under

these circumstances, that it creates a significantly higher number of validations. Furthermore, we can see an effect related to the order of competences in the official grid, the number of validations generally decreasing from the first to the fifth Domain (see Table 6).

5.2 Distribution of competences according to class years (3: oldest; 6 youngest)

	3 ^e	4 ^e	5 ^e	6 ^e	Total
C_1_1	5821 \uparrow	4775	3671 \downarrow	617	14884
C_1_2	5186 \uparrow	4134	3121 \downarrow	453	12894
C_1_3	3969	2217	1254	227	7667
C_1_6	3482	1940	913	219	6554
C_1_5	3619	1672	888	149	6328
C_1_4	3287	1718	656	145	5806
C_2_6	2580	1628	1012	207	5427
C_3_1	2799	1530	740	103	5172
C_3_3	2681	1758	541	144	5124
C_4_3	2331	1125	895	104	4455
C_2_2	2309	1227	679	119	4334
C_2_1	2083	1044	812	140	4079
C_3_4	1742	1779 \uparrow	208 \downarrow	210	3939
C_3_5	1756	1616 \uparrow	201 \downarrow	114	3687
C_5_3	2538 \uparrow	594 \downarrow	382	104	3618
C_4_1	1496	1032	742	174	3444
C_5_4	2025	624	312	101	3062
C_2_7	1896	777	202 \downarrow	147	3022
C_2_3	1652	859	287	97	2895
C_5_2	1929 \uparrow	505	265	70	2769
C_2_5	1212	667	244	103	2226
C_4_2	1308	507	281	101	2197
C_4_5	1407	423	162	106	2098
C_3_2	1129	665	111 \downarrow	53	1958
C_4_4	890	360	352	94	1696
C_5_1	925	469	105	56	1555
C_3_6	1070 \uparrow	259	61	51	1441
C_2_4	778	424	97	98	1397
C_3_7	998	268	53	55	1374

Dependence is very significant: Chi2 = 7205,96, degrees of freedom = 84, p < .01
The sign \uparrow marks the boxes for which the actual number is much higher than the theoretically predicted value and the sign \downarrow marks those where it is much lower

Table 6. Ranking of skills depending on their frequency of validation

A more detailed analysis that distinguishes each competence confirms, for the most part, the hypothesis of a correlation between the frequency of validation and classification of items in the official grid. It also highlights “orphan skills” (last

ranking) as the competence 3.7 (“I know how to deal with image and sound files, using appropriate software to change basic elements”), the competence 2.4 (“I am able to adopt a critical attitude to the results of processing [calculations, graphical representation, use of spelling and grammar checks ...]), the competence 3.6 (“I know how to use simulation [or modeling] tools, being aware of their limitations”) and the competence 2.5 (“I take precautions against associated dangers [viruses, spam.....]”).

These four competences, like those that precede them in the final ranking, are interesting in that they bring into conflict various difficulties for educational institutions. While the 3.7 competence, an operational one, could easily result from learning through experience outside school, it is difficult to validate within the college, in the absence of appropriate activities. Similarly, competence 2.5, like many of the competences of Domain 2 concerning items that Caroline d’Atabekian describes as "citizens" items [Atabekian, 2007], remains largely inaccessible to the teacher. The present authors can confirm the disjunction between young people’s media practices depending on whether they operate in the school sphere or outside. It also illustrates the respective positions of young students and teachers in the use of ICT skills (see Figure 2). As for the competences 2.4 and 3.6 on the other hand, these tap strategic and operational levels. If they are more easily mastered by the teachers, they require pupils to engage in real structured learning that their personal experience does not give, and that they do not find either in today’s colleges.

5.3 Involvement of teaching departments in the implementation of the B2i

	D1	D2	D3	D4	D5	Total
Mathematics, sciences and technology	43295	15944	18152	6974	8337	92702
Human Sciences, Literature and Languages	8029	5412	3554	3629	2382	23006
Library-Teaching	1524	1192	317	2946 ⦿	149	6128
Others	1285	832	672	341	136	3266
Total	54133	23380	22695	13890	11004	125102

Dependence is very significant: Chi2 = 11870,23, degrees of freedom = 12, p < .01
 The sign **⦿** marks the boxes for which the actual number is much higher than the theoretically predicted value and the sign **⦿** marks those where it is much lower.

Table 7. *Competences validated according to classes and disciplines*

Again, the data from GIBII confirm those available elsewhere (site visits, interviews with teachers). Basic science and technology disciplines together give rise to most validations, followed closely by the librarian-teacher who is in third position in table No.7. But the librarian-teacher has only one subject to teach, whereas the other categories group together several subjects. This over-representation is consistent with what is known also on the involvement of teachers in the use of ICT as a tool for learning. Regarding B2i, this distribution is

paradoxical in that it is the teachers in the disciplines most directly linked to the technologies themselves who occupy the main role in the system, whereas the system should not depend on the teaching of ICT, but should bring into play the most varied school contexts.

Two disciplines deserve special attention because their own official reference grids include competences of the B2i. One is the technology which, on its own, validated 73441 out of 125102 competences, or 58.7%, of which almost half (35090) fall within Domain 1. This domain is the most operational and linked to the Technology program's teaching. Similarly, teacher-librarians have validated 6128 (about 4.9%) competences, even though there are only one or two teachers of this type per school, where in other disciplines there may be about a dozen. Again, alone, they have validated about one-fifth (21.2%) of the competences directly related to their field (D4). One sees here, in accordance with the paradox mentioned above, that the effectiveness of the system is verified only when the B2i and the discipline's official reference grids have a good degree of overlap.

6. The need for education in the uses of technology

For many, the question of familiarity with information technology and communication is reduced to the fact of whether they use them or not. On this account, with the enthusiasm of young people for all information technology and communication available, the simple process of generational renewal would, in itself, constitute a resolution to the problem.

However, various studies show that if young people are greater users of the Internet than their elders, they also face greater difficulties in implementing the high-level skills (strategies for organising media tasks, planning tasks, reading-comprehension of complex documents) that determine actual ability in usage and therefore the success of distance learning courses. It is therefore no exaggeration to talk of the paradox of the Internet generation [Rizza, 2006].

Under these conditions, as the Alexandria Proclamation²⁴ advocates, the right to education must include the right to training in media literacy and information systems as soon as school courses start. It remains now to define the scope and modalities. In fact, there are initiatives with highly contrasting territories, corresponding to two radically different options.

²⁴ Prepared by the participants in the "National Forum on Information Literacy" organized by IFLA and UNESCO, from 6 to 9 November 2005 in Alexandria, http://portal.unesco.org/ci/fr/files/20891/11364818989Beacons_of_the_Information_Society_The_Alexandria_Proclamation_on_Information_Literacy_and_Lifelong_Learning.doc/Beacons%20of%20the%20Information%20Society_%20The%20Alexandria%20Proclamation%20on%20Information%20Literacy%20and%20Lifelong%20Learning.doc (consulted 17 April 2007)

The first calls for training by experience and the second for specific training as is the case in secondary schools in the Czech Republic and Hungary, for example²⁵. The first involves the use of technology broadly integrated into educational practices associated with an assessment and certification of competences based on an official reference grid. The French experience embodies this alternative. After putting in place specific teaching at school and university in the 1980's, French projects have fairly quickly become geared towards a strategy of enhancing the experience aspect. The progressive implementation since 2000, of IT and the Internet qualifications (B2i in school education and C2i in the universities) has taken place with this in mind, even if the B2i was recently awarded a special role in French education, in the drafting of *le socle commun de connaissances et de compétences* (the common base of knowledge and competences).

It should be remembered that, in the eyes of the legislature²⁶, "le socle commun...[common base...] is composed of a set of knowledge and competences that it is essential to acquire to successfully accomplish the pupil's/student's schooling, continue his or her training, build for his/her personal and professional future where he/she plays a successful role in society". How can we not see a paradox in that institutional decision? The common core curriculum establishes the learning of competences relating to the use of information technology and communication as part of its base, while the accepted school system (B2i) is not based on any specific discipline of instruction.

This educational policy, operating in France since 2000²⁷, has the advantage of not calling into question the fundamental architecture of education by not requiring specific teaching for ICT. However, there is a danger that it will be unfair in strengthening the educational aspects of social inequality. The social circles of the wealthiest and best-trained would be able to provide a cultural environment conducive to the development of some of the skills needed, as shown by several decades of work in the field of the sociology of education [Cacouault and Oeuverd, 1995].

The thesis of Bruno Devauchelle [2004, 2006] shows very clearly that the construction of competences in the use of technology, including in the young, is based primarily on extra-curricular activities, mostly of a domestic nature. This echoes exactly the issue raised by George Friedman [1961] and then by Louis Porcher [1974] on the subject of television, described as a "parallel school". Following the example of these children of the "television generation", those of the

²⁵ Source Eurydice,

<http://www.eurydice.org/ressources/eurydice/jpeg/048FRXX010B03x0101f.jpg> (consulted 5 January 2008)

²⁶ Décret D. n° 2006-830 of 11-7-2006, JO of 12-7-2006,

<http://www.education.gouv.fr/bo/2006/29/MENE0601554D.htm>

²⁷ BOEN n°42 of the 23 Novembre 2000,

<http://www.education.gouv.fr/bo/2000/42/encart.htm> (consulted 17 April, 2007)

Internet generation are numerous and not likely to achieve full autonomy in their media practices, lacking the required emancipatory training. Revisiting this issue, Louis Porcher [2006] today argues ardently for the training of more young people in communication competences.

This strategy of validating competences can even escape the influence of educational systems geared to the attainment of private qualifications. For example, the *Passeport de Compétences Informatiques Européen* (European Computer Driving Licence -ECDL²⁸) is moving away from an educative approach towards the logic of a supply-and-demand regulation of the labor market. This corresponds to what the TOEIC²⁹ qualification represents in regard to the mastery of the English language.

The study referred to in this article makes for a nuanced look at the X2i French initiative. It is obvious that there is an “X2i effect” in the sense that the system has played and continues to play a pivotal role in the service of institutional policy for developing the uses of ICT in schools. Nevertheless, its effectiveness regarding the acculturation of young people remains modest. It certainly falls short of the stated objectives. Very recently (December 28, 2007) an event occurred which demonstrates the difficulties in deploying the system, at least at the time of writing the conclusion to this article. While obtaining the college level B2i becomes mandatory for obtaining the college certificate for the first time in the 2007-2008 school year, field data collected by the Ministry of Education (fully compatible with those of the present authors) show that most of the pupils concerned will not do so.

The impetus awaited from this new academic obligation has not been enough and it is necessary to make an adjustment to prevent the failure of the majority of college pupils. While a transitional measure or a deferral of the obligation to next year could have been chosen, a significant development has been made. A decree, published in the *Journal officiel de la République française*³⁰ stipulates that the skills can now be validated without pupils requesting it. This change, which seems innocuous, is not because it alters the logic of the system by weakening the involvement of the pupil's learning objectives and leaving the door open to strategies for rapid and systematic validations in establishments which are struggling to put in place the B2i. A second new measure makes it possible for juries of national certificate to take the place of schools to validate the B2i. They

²⁸ Or European Computer Driving Licence (ECDL)

²⁹ « Test Of English for International Communication » created by the American company Educational Testing Service (ETS)

³⁰ Order of December 18, 2007 amending the decree of June 14, 2006 on the official reference grids of knowledge and competences required for IT and the Internet proficiency certification, published in the *Journal officiel de la République française* No. 301, December 28, 2007 page 21666 (NOR: MENE0773559A) <http://www.legifrance.gouv.fr/WAspad/UnTexteDeJorf?numjo=MENE0773559A> (consulted January 15, 2008)

would do this from the documents provided by the colleges, without it being necessary for pupils to justify the possession of competences, as is normally required. These two measures will undoubtedly allow the B2i not to disrupt the general exam taken at the end of the final college year in the 2007-2008 school year. However, one can only fear it will significantly hamper the deployment of the B2i in the future.

We can hope that these circumstantial adjustments will be subject to further, more ambitious adaptations if they are to achieve the objectives assigned to the system. Nevertheless, the need for such changes highlights the problems. Several issues have been raised in this article to shed light on these difficulties and identify their nature. Briefly, it seems that they all relate to the cultural dimension of the technologies and their uses. The primary rationale for the X2i is to be accountable, at least in part, for the IT acculturation of young citizens of a society in which digital technologies are now established. This implies that the school culture itself (and therefore that of the teachers) includes this dimension. The data the authors have presented show that this is an ongoing process (the involvement of teachers, however modest, has never been so strong as it is now) and it is essential to take into consideration that acculturation takes a long time.

To conclude one can quote the famous article of the media-friendly Marc Prensky [2001], referring to the *digital natives* ("our" young people) and *digital migrants* ("our" teachers), which moved the issue of the Internet generation into the field of acculturation of immigrants and wondered, with a forceful expression not without humour, at how "*our Digital Immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language*".

7. Bibliography

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