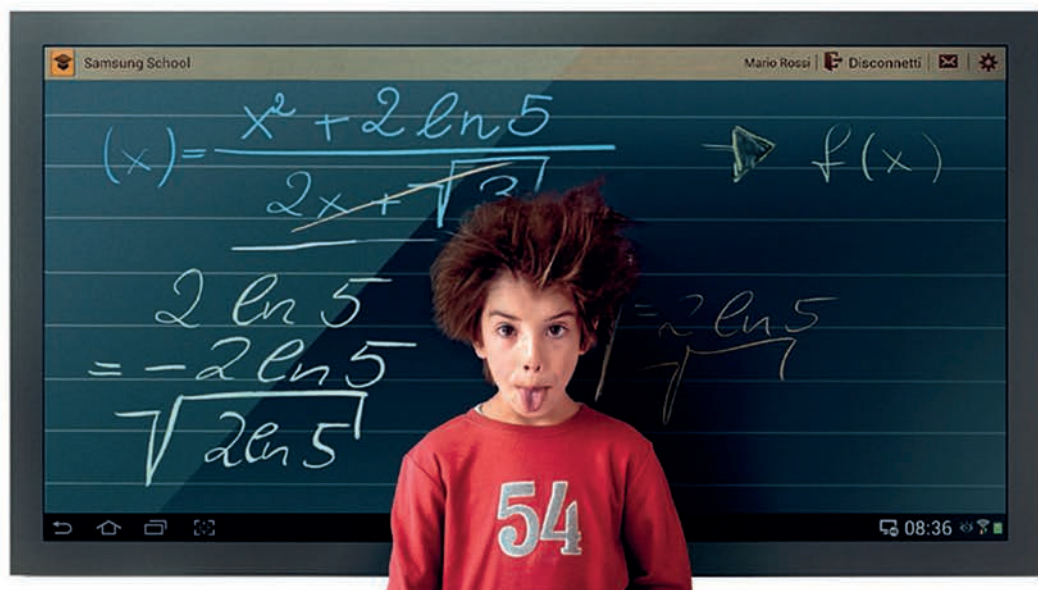


edited by
PIER CESARE RIVOLTELLA

SMART FUTURE

TEACHING, DIGITAL MEDIA AND INCLUSION



MEDIA
E
TECNOLOGIE
PER
LA
DIDATTICA

FrancoAngeli



Informazioni per il lettore

Questo file PDF è una versione gratuita di sole 20 pagine ed è leggibile con



La versione completa dell'e-book (a pagamento) è leggibile con Adobe Digital Editions. Per tutte le informazioni sulle condizioni dei nostri e-book (con quali dispositivi leggerli e quali funzioni sono consentite) consulta [cliccando qui](#) le nostre F.A.Q.



edited by
PIER CESARE RIVOLTELLA

SMART FUTURE

TEACHING, DIGITAL MEDIA AND INCLUSION

MEDIA
E
TECNOLOGIE
PER
LA
DIDATTICA

FrancoAngeli

in collaborazione con

The Samsung logo, consisting of the word "SAMSUNG" in white, uppercase, sans-serif font, centered within a blue, horizontally-oriented oval shape.

Translation: *Seamus Taggart*

Original Italian Edition, *Smart Future. Didattica, media digitali e inclusione*

Copyright © 2015 by FrancoAngeli s.r.l., Milano, Italy.

All rights reserved. As you download this e-book, you do accept all the license conditions described in www.francoangeli.it

To find out any information about books and journals published by FrancoAngeli, please join us on the World Wide Web at www.francoangeli.it

Index

Introduction	pag.	9
<i>by Pier Cesare Rivoltella</i>		
1. 1. The “Digital School”: Where Are We Now?	»	13
<i>by Floriana Falcinelli and Pierpaolo Limone</i>		
1. The Digital Turning Point: Technologies, Expertise and Citizenship	»	13
2. The Commitment of the Ministry of Education to Technological Innovation in the School	»	15
3. Towards an Education Directed and Incorporating New Technologies	»	17
4. Innovation Plans	»	20
4.1. The University and Industrial Research	»	22
4.2. Companies and Social Responsibility	»	23
4.3. Schools and Innovation Learning Environments	»	24
5. The Future of the “Digital School”	»	25
5.1. The Unfinished Textbook Revolution	»	26
5.2. The Community as a viral Factor	»	26
5.3. The Evaluation of the Effectiveness of the Proposal	»	27

2. School, Companies and Education Policies - The Case of Samsung	pag.	28
<i>by Pier Cesare Rivoltella</i>		
1. The Reasons for Mistrust	»	28
2. The Challenges of Today	»	30
3. Towards a New Alliance	»	31
4. The SMART FUTURE Case	»	35
3. The SMART FUTURE Project. Numbers, Development and Communication	»	39
<i>by Manuele De Mattia and Chiara Merigo</i>		
1. Corporate Social Responsibility: The Actions of Samsung	»	39
2. The School and Technologies: The Situation of the country and the SMART FUTURE Project	»	42
3. Think to Act: The Role of the Advisory Board and the Initiation of the Pilot Project	»	44
4. SMART FUTURE Communication	»	49
4. The Observatory on Media and Digital Content in Schools	»	54
<i>by Pier Cesare Rivoltella</i>		
1. The Media and Research: A Long-standing Relationship	»	54
2. Research on Schools and Technology: The Nature and Functions of Monitoring	»	56
3. The Genesis of a Model: A "Research History"	»	60
4. The Observatory on Media and Digital Content in the School	»	63
5. Research: Systems, Methodology and Tools	»	66
<i>by Floriana Falcinelli, Pierpaolo Limone and Pier Cesare Rivoltella</i>		
1. The Research Motor: Between Monitoring and Reflective Analysis of Teachers' Practices	»	66
2. Methodology and Phases	»	70

2.1. The Quantitative Phase: The Function of Questionnaires	pag.	70
2.2. The Qualitative Phase: In Direct Connection with the Class	»	71
3. The Tools: Functions and Uses	»	75
3.1. The Observation	»	75
3.2. Focus Groups	»	77
3.3. Cultural Probes	»	79
6. Technology in the Classroom: From Implementation to Training	»	84
<i>by Simona Ferrari and Elena Mosa</i>		
1. When Technology Inhabits the Classroom	»	84
2. Innovation and Communication at School	»	86
3. The Pre-installation Phase	»	89
4. The Installation	»	93
5. ICT and Teaching Practices	»	95
6. Technical Training	»	97
7. Representations and expectations	»	103
<i>by Alessandra Carenzio and Rosaria Pace</i>		
1. Representations of the Technology: Teachers and Lecturers	»	103
1.1. Working in the Classroom with Digital Technologies: Head Teachers' Representations	»	106
1.2. To Imagine Schools with Mobile Devices: Head Teachers' Representations	»	109
2. Representations of the Technology: The Point of View of Parents	»	110
3. Representations of the Technology: The Point of View of the Students	»	113
4. The Samsung Suite and Expectations of Change	»	120
4.1. Scenarios	»	120

4.2. Some Proposals for a Redesign	pag.	124
5. Final Remarks	»	127
8. Ethnography of the Educational Work	»	129
<i>by Simona Ferrari and Chiara Laici</i>		
1. Smart Classroom setting	»	131
1.1. Space Management	»	132
1.2. Time Organization	»	135
2. Classroom Activities	»	141
3. Roles	»	145
3.1. Teachers	»	146
3.2. Students	»	150
4. Technology	»	153
4.1. Usage	»	153
4.2. The Perception of a Negative Impact on Teaching	»	158
9. The Community of Teachers. From the Clinic to the Web	»	162
<i>by Pierpaolo Limone, Rosaria Pace and Pier Cesare Rivoltella</i>		
1. IThe Construct of “Communities of Practice” and the “Training” of Teachers	»	162
2. The Clinic - Definition, Methods and Case Studies	»	166
2.1. The BLEC Model and the Function of the Clinic	»	166
2.2. The SMART FUTURE Clinic: Structure and Characteristics	»	169
3. The SMART FUTURE Community	»	172
3.1. Planning the Environment	»	174
3.2. Planning the Environment	»	177
3.3. An Initial Analysis of Exchanges	»	183
Bibliography	»	186

Introduction

by *Pier Cesare Rivoltella, CREMIT, UCSC*

This book deals simultaneously with three issues: educational technology in the school, the relationship between education, research and companies and the professional development of teachers. In respect of these three themes this volume may be considered as a research report, a case study and a working hypothesis. Let us begin to explain why.

The research consists in the monitoring which the Observatory on Media and Digital Content in the School conducted on the pilot phase of the project SMART FUTURE during the school year 2013-14. This project has been realized through a programme of social responsibility that Samsung has launched internationally in many of the countries in which it operates with its subsidiaries (Chapter 3). It intends to equip schools with a Smart Classroom incorporating an e-Board, server and printer, a master tablet for the teacher, a tablet for each student and dedicated applications. The Observatory - established at CREMIT (Center for Research on Media Education, Information and Technology) at the Università Cattolica di Milano (Chapter 4) - is the prism through which academic standards are guaranteed both in function of the evaluation of the actions carried out, and that of the coordination of the teachers' work.

The evaluation was entrusted to a qualitative/quantitative research entity (Chapter 5). This has allowed us to work on the following elements:

- 1) representations of students, teachers and parents (through initial and final questionnaires);
- 2) teaching practices in the classroom, through observation sessions and focus groups;
- 3) level of appropriation of technology by using the innovative instrument of cultural probes. The result is a survey that is aimed at the academic community and the reading public interested in meaningful data in

terms of school innovation and the relationship between technology and education.

This is a case study which can be read on two levels.

On one level, one can reconstruct the network of relationships that the project has been able to establish between commercial companies and schools, commercial companies and Universities, and universities and schools. In respect of all three combinations SMART FUTURE allows one to highlight the discontinuities in respect of what normally occurs: the traditional mistrust of the school towards commercial companies is superseded by an alliance built on awareness and social responsibility; the distance of the Universities to commercial companies (at least for the Humanities and Social Sciences) is replaced by a partnership in which research becomes a counseling process and an opportunity for improvement for both sides. Universities and schools eventually enter into a virtuous cycle of theory and practice (Chapter 2).

The second level allows one to appreciate the main results that the case study has presented. This is the content of the second part of the volume, where the problems generated by the impact of technology in schools will be discussed, considering the opacity and the countless criticalities of the system that its integration involves (Chapter 6). At a higher level rank the complex dynamics that sustain both representations of the technology available to teachers (and those who direct its use) and the levels of expectation generated both at school and at home (Chapter 7). The observational analysis of work in class and the study of practices in the context of both teachers and students complete the picture by providing an insight into the vibrant life of the school (Chapter 8).

As I said at the beginning, this volume is also a working hypothesis. From this point of view the book can be used by policy makers, or by head teachers, as a sort of manual outlining what needs to be done - in terms of technology, organization and teaching - when one wants to promote innovation through digital technologies. Special emphasis in this regard should be given to the proposal of a model of vocational development for the teachers involved that might be built upon:

- The guiding role of universities;
- Double identity, of researchers and actors, of professionals - typical of all forms of research-intervention;
- The community as a resource to draw upon, share and compare experience in a reflective professional practice (Chapter 9).

At the end of this introduction I cannot but thank those who with me participated as co-creators of both the project and the book:

Manuel De Mattia and Chiara Merigo, and with them all the friends of Samsung Italy and their partners: for the professionalism, enthusiasm and their determination to engage in dialogue with universities and with schools. After a year of work I think I can say that we have become a real “mixed” team, between the university and the organization: an important basis which in the future I hope we will be able to build upon.

Pierpaolo Limone and Floriana Falcinelli, the Observatory’s members and fellow travellers on this adventure. To Pierpaolo, in particular, whom I owe thanks to for the initial intuition and the launch of the enterprise. I thank him for the confidence and determination to bring the Observatory into the Università Cattolica, as part of the CREMIT centre.

Alessandra Carenzio, Simona Ferrari, Chiara Laici and Elena Mosa who were the researchers and the coaches of the schools involved. Thanks to them the project had continuity and schools have found an interlocutor attentive to developing everyday solutions to their problems. To Simona, particular thanks for her punctual and indeed precious coordination. For this I will pardon the delay with which you handed in your contributions to this volume.

All the head teachers and teachers I met during the project deserve a final thank you. They are serious professionals, enthusiastic people where schools are concerned. Seeing them work, conversing with them during the clinics, the words of Paulo Freire often came back to me: “Sem a curiosidade que me move, que me inquieta, que me insere na busca, nem aprendo nem ensino”, without the curiosity that moves me, preoccupies me, encourages me to research, I will never learn nor teach.

Milan, November 2014

1. The “Digital School”: Where Are We Now?

by *Floriana Falcinelli, Università di Perugia* and *Pierpaolo Limone, ERID Lab, Università di Foggia*¹

1. The Digital Turning Point: Technologies, Expertise and Citizenship

Technological evolution in recent decades has been strongly characterized by the spread of digital language and the development of the net. The *adoption of digital resources* has permitted forms of technological hybridization and a level of integration between totally different new codes. This has led to an entirely new way of dealing with information, storing it, processing it, organizing it on the net, and if required, passing it through long distance data networks. The concepts of *multimedia*, *hypertext* and *interactivity* have thus been established, and at the same time the net has established itself socially as a new horizon of a world alive, dynamic, ever-changing, open, and heterogeneous. Everyone can contribute to the construction of this net through a process of interactivity that this digital revolution has made possible. With it we have seen the growth of a *cyber-culture* that imposes new interpretive paradigms on formative actions (Lévy, 1999).

The new *information and communication technologies* (ICT) have a profound effect on at least two aspects that are the basis of any action on the part of the teacher, *access to knowledge and culture* and the sphere of communication, but above all it puts the student at the heart of the learning process. Indeed the student, thanks to the electronic tools available, can become the ‘architect’ of the actual journey of discovery, with the guidance of a teacher who designs an environment rich in resources, flexible, open to active research with a constant monitoring of the process of teaching and learning (Falcinelli, 2005).

¹ The authors shared the layout and content of this chapter. Floriana Falcinelli materially composed §§ 1-3, and Pierpaolo Limone §§ 4-5.

These technologies increasingly characterize the experience of the new generations who access information and communicate in a direct way in the world of the web. Indeed the web has become a great shared social space (Rivoltella, Ferrari, 2010a). One speaks now of WEB 2.0, according to the famous definition of O'Reilly, as a new age in the spread of information technology characterized by the leading role of cloud computing ("The platform is the WEB", as O'Reilly pithily summarizes) and by the possibility of everyone to interact with each other and participate in the production of content.

The resources on the web today - such as blogs, social networks, podcasting, file sharing - allow everyone to produce, share, select and annotate content, indeed catalog, download and also edit content. Wikis allow the collective writing of a text and collaboration in the production of knowledge. It is not just a matter of new possibilities offered by XML, it is also a new culture. "To harness collective intelligence," says O'Reilly is to harness, collect and to take advantage of collective intelligence (Laici, 2007).

For all these reasons, expertise in ICT was considered by the OECD (*Key Competencies For Lifelong Learning - A European Reference Framework*, November 2004), one of the key competencies to achieve in school in order to train young people to integrate themselves effectively in the 'Europe of knowledge'. In particular, it requires that youngsters are not just trained in the use, but actually learn to use competently the various technologies, understanding how to choose, analyze and evaluate the information they convey, knowing how to solve relevant problems with these technologies and to make decisions, express their creativity, communicate and collaborate to build significant and original products, so as to become informed citizens, taking control as full participants.

This focus is shared by the EU institutions. In the *recommendations of the European Parliament and of the Council of Europe of 18 December 2006* on key competences for lifelong learning, in to regard to digital competence, it was stated that:

Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet. Digital competence requires a sound understanding and knowledge of the nature, role and opportunities of IST in everyday contexts: in personal and social life as well as at work. This includes basic computer applications such as word processing, spreadsheets, databases, information storage and management, and an understanding of the opportunities and potential risks of the Internet and communi-

cation via electronic media (e-mail, network tools etc.) for work, leisure, information sharing and collaborative networking, learning and research. People should also be aware of how IST can support creativity and innovation, and be aware of issues concerning the validity and reliability of information available and of the legal and ethical principles involved in the interactive use of IST. Skills required include: the ability to search, collect and process information and use it in a critical and systematic way, assessing relevance and distinguishing real from virtual while recognizing the links. Individuals should also be able to use tools to produce, present and understand complex information and be able to access the Internet-based services, research and use them. Individuals should also be able to use IST to support critical thinking, creativity and innovation. Use of IST requires a critical and reflective attitude towards available information and a responsible use of the interactive media. An interest in engaging in communities and networks for cultural, social and/or professional purposes also supports such competence.

All this has led the Ministry of Education, University and Research in our country, to promote and support technological innovation processes in the school.

2. The Commitment of the Ministry of Education to Technological Innovation in the School

The process initiated with the 2009 National digital school plan (Pnsd) led to the substitution of previous educational models (Pnsd, 1995 and Fortic, 2003) and has launched a real digital revolution.

The objectives of the plan were multiple: to increase technological equipment in schools, bring innovation into the classroom, destroying the idea of the computer lab as such to focus particularly on the need to set up a learning environment where students were co-authors of the knowledge process along with teachers, researchers and facilitators, and on the preparation of teachers who had to be brought up to date through dedicated training.

The plan is divided into various integrated measures.

The first project is the *Digital School-Interactive Whiteboards (IWB)*, created to develop and strengthen educational innovation through digital technologies. To this end, the Italian Ministry of Education has prepared a plan which envisaged the equipping of state schools with technological kits consisting of an interactive whiteboard (IWB) with integrated projector and personal computers. IWBs, are indeed particularly suitable for schools. It permits the integration of ICT in teaching in the classroom, across the various disciplines and in support of an inclusive education. It has also provided

a dedicated training plan, taught by experts, which was prepared previously by INDIRE (National Institute for Documentation of Educational Research and Innovation). Its aim is to create space for reflection on practice and offer teachers support for the design and management of learning activities with IWBs.

The *project Cl@ssi 2.0* was intended to offer the opportunity to verify if and how, the traditional learning environment was transformed through daily use in classroom activities with new technologies, both in space and in time and through the organization of activities in an active and collaborative learning environment. The focus was not on technological tools but on the creative design skills of teachers. For this we have asked teachers to formulate a draft educational innovation project, based on which they could acquire those devices deemed necessary to implement the project within the budget made available to the school. The technology is then viewed within the context of an innovative educational project, as a resource that only the pedagogical-didactic intelligence of the teachers can make full use of. The logic of the project tends to enhance the implementation of innovative educational experiences that can infiltrate the school, including those classes that do not participate directly in the initiative and indeed families too.

The *Scuola 2.0* project, increasing the budget granted to the school, was intended to extend the innovation to all classes within a systemic framework. Thanks to their autonomy, schools are encouraged to adopt organizational solutions and new flexible and open teaching methods. In this case, the Teachers' Board, together with the head teachers are involved. The Educational Policy Plan (PoF) presents the choices taken by the school in relation to the families and the surrounding area, while the School Board in its diverse elements as well as parents and students are given a shared responsibility in the project.

The project *Editoria Digitale Scolastica* has also been initiated by the Ministry and it is anticipated that it will stimulate activity in the publishing world with the aim of producing innovative editorial products. It intends to acquire, in partnership with educational institutions involved, 20 prototypes of "digital scholastic editions", i.e. products that enable students and teachers to interact effectively with modern digital technologies and to experiment with new content and modes of study and knowledge communication, both of individual disciplines and cross-curricular ones.

Project *@urora* aimed at incarcerated minors has long been active with the objective to train these minors in vocational fields (for example: computer science, photography, digital video editing professionals, web master basic) to facilitate their reintegration into the world of work. Likewise the Project *SHS@Network* for young people who have been hospitalized or are being

home schooled, will enable them, thanks to the tools of synchronous and asynchronous communication, to continue to participate in school life and at the same time allow classmates to share the 'experience of their schoolmate.

Major impetus has been given to the project Scuola in chiaro in order to make available on the website of the Ministry of Education substantial information concerning educational institutions, in an organized and consistent fashion and to the activation of the online Registers - Dematerialization activities in regard to school secretaries, which cover all measures and provisions that are relevant in managing subscriptions online, electronic report cards, online registers, and sending communications to students and their families in digital format.

The latest regulations have been advanced on a broader front utilizing new technologies within innovative system processes. For example the DL 104/2013 offers multiple innovations with respect to the school system and provides funding for media and digital books or to support in the diffusion of wireless connections, while the DM 781 of 27/09/2013 explicitly provides for the possibility of choosing books in digital or mixed versions.

Therefore, we are in a phase of reflection that stimulates us to overcome the slightly naïve logic which from the introduction of the technology produced an almost automatic tool of educational innovation. One is now fully aware of the fact that real transformation is only possible by integrating an educational knowledge oriented towards innovative processes and an organizational capacity that allows flexible management of time, space, the way the class works, and technologies.

So investing in technology today does not mean simply investing in tools but rather in an educational process producing a culture that promotes access to devices with a view to interoperability with Web 2.0, open educational resources and the contents of effective digital publishing. This also conceives of interaction on the level of online security and with a digital citizenship that values ethical-social behaviour and is respectful of people and their dignity.

The trends promoted by the new measures, also in relation to the Digital Agenda and the evaluation and recommendations of the OECD, tend to improve ICT infrastructure and network connectivity for schools, and to improve and increase the possibilities of teacher training, supporting the philosophy of open access.

3. Towards an Education Directed at and Incorporating New Technologies

As Calvani suggests (2007), the school so far has taught technology (*teaching about technology*) with courses specifically aimed at ICT literacy and pure-

ly computer related objects (word processors, spreadsheets, etc.), or has taught with technology (*teaching with technology*) considering technology useful both in terms of the motivation to study, with respect to improving the effectiveness and efficiency of teaching.

We must instead go further, teaching in technologies (*teaching through technology*), since they force us to confront a teaching model antithetical to traditional transmissive teaching. ICT involves moving from the centrality of the teacher who transmits to the centrality of the student who learns. This is not only linear, static and repetitive, but reticular, hyper-textual and dynamic, a learning process that is the result of social construction. The emphasis is on the processes put in place by the students, which consist mainly in individual and/or collective activities, under the supervision of the teacher who themselves become a researcher with the student (*co-investigation*).

It is a school, however, that already is taking stock of the e-book revolution which must be accessed predominantly by mobile technologies (such as a tablet, or smartphone). It still has to be ascertained if and how this new way of reading texts will change the process of understanding, managing and organizing knowledge.

One thus realizes the urgency to make the *new technologies of education a fundamental dimension of the scholastic educational project*, also in the context of citizenship education, a regular experience, consistent with the purposes of the school and integrated in its training project. Building a project to develop technological education means creating learning paths which working on the new technologies and with the new technologies allow students to get to know and live out the experience in a more exploratory and creative way. In so doing, considering them valuable resources for the accessing of information and communication and gaining awareness and reflection on their multiple uses. This aspect, indeed, can become the subject of an *educational project shared between the various training agencies*, in particular the family and local structures.

In this scenario, the teachers, as hermeneutic-critical subjects who seek to attribute meaning to their actions and the complex educational system in which it occurs, must consider new technologies as *new contexts/environments for teaching and learning* (Rossi, 2009), and as resources for training actions, though at the same time seizing the elements of diversity that they introduce into the traditional teaching relationship. The learning process uses multidimensional experiences, it becomes increasingly more constructive and networked, socially shared, testing the limits of the game, the imaginary space and emotional expressiveness. It is continuously contaminated by informal communication events (Ferri, 2008). At the same time the widespread

and generalized experience that children make of the new technologies leads them to question the sanctity of traditional culture, where the school in the past had the task of transmitting, and bringing one to the idea of culture as a system of dynamic symbols, open to social construction, in the logic of universality without totalizing closures.

The school therefore must develop a ‘cultivated’ approach to the new technology if it is to respond adequately to childrens’ needs in regard to knowledge, expression and communication. Today this is characterized by connection anxiety, from a widespread experience which is personalized, immersive and integrated through different media (Rivoltella, 2006). We are in the presence of what is termed the “*mobile generation*”, which experiments in an ongoing manner with a sort of intermediality, where one can simultaneously use different types of integrated media, in a *multitasking* environment.

The school needs to recognize this experience, which is widespread amongst children and help them organize, reflect, give meaning to their existence. Above all one must guide the children because they are orienting themselves towards a *new media ecology*, which provides a virtuous integration of the various media and technological experiences with many experiences with other languages and other approaches to reality (Morcellini, Cortoni, 2007). One must also promote the *non-passive use of technological means* and provide within an educational scheme. a clear and rigorous teaching regime, which will become a true learning resource, not an intrusive disorienting element.

This is essentially what we intend teaching becomes. Indeed this characterized the SMART FUTURE trial, and the choice of working with the Episodes of Situated Learning (in italian EAS, Episodi di Apprendimento Situato) approach. It is a methodological proposal which, although functional also in learning environments not aided by technology, is particularly effective for the purpose of integrating mobile devices within a learning process which reverses the logic of the traditional lesson to promote cooperative activities carried out independently by the children as a result of stimuli specially prepared by the teachers (Rivoltella, 2013). Echoing some ideas of Freinet’s methodology and other sources that derive from international experience (the open classroom, cooperative learning and the flipped lesson), the EAS methodology promotes a process of teaching/learning that seeks to bridge common informal learning incorporating digital media and formal learning in the classroom, which necessarily deals with skills, learning objectives, knowledge of various disciplines and verification procedures and evaluation.

The teachers involved in the experiment were trained in the logic of EAS

teaching, the elements that it composes, and the educational format that characterizes it. Emphasis was therefore not placed on the tablet-instrument but rather on a teaching process that was accompanied in all its phases by guide-cards and tools for reflection. The teachers were accompanied by expert coaches and were able to share their experiences with colleagues thus gradually building up a true community of practice (Chapter 9).

This proposal has reassured teachers, without locking them into a rigid model, instead providing them with the necessary elements for a personal design and re-elaboration process, in relation to different contexts. In this sense, we worked on the processes of education in which the technology was a valuable resource but not an exclusive one.

4. Innovation Plans

The digital school for many is a slogan or perhaps a political objective, rather than a real educational and social need. Instead, digital technology in schools, if observed closely and honestly, demonstrates the vitality of an increasingly interesting ecosystem of experience, but hard to recount in a systematic perspective.

The educational innovation that has been practiced in Italy over the last several years has often the subject of attention from newspapers, yet these reports simplify and distort the work of teachers and researchers working in the field.

The emphasis on the introduction of a tablet for each student, or the substituting of textbooks by self-produced e-books, do not explain the difficulties of tens of thousands of teachers and students who seek to reconcile formal learning and informal practices through the mediation of digital languages.

While simple media generalizations reduce the issue of the digital school to a debate of low value in the public sphere, the scientific study of the practices of teaching and learning is instead done by so few researchers who work in such a fragmented reality without adequate and structural funding makes an overview difficult. Thus to analyze fragments of a reality so vast and heterogeneous, in such a context will likely result in them escaping our understanding, making it therefore difficult to communicate any conclusions.

The size and the diversity of our education system therefore represents a major challenge for those studying educational phenomena, because the micro-research that takes place in Italy is in danger of losing sight of the wider